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TREATMENT OF SURGICAL INJURIES FOLLOWING CHILDBIRTH.[1]

By HERBERT H. SCHLINK,
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My paper this evening will contain little that has not been said or written before by the various authorities on the subject under review; nevertheless I trust that it will serve as a basis for discussion and that it will enable us to clarify the main principles which govern the repair work of the numerous late disabilities following in the wake of childbearing. I am of opinion that several standard groups of operations suitable for repair should be adopted by the College, as the profession at present is hopelessly confused about the indications for the few useful procedures that exist, due mainly to the numerous badly conceived operations described by some of our text book writers. Although my respect for the great names in gynæcology is second to none, I wish to lay stress on the fact that what I am about to say is the result of my own personal experiences during twenty years' surgical work at the Royal Prince Alfred Hospital, Sydney.

[1] Read at a meeting of the Royal Australasian College of Surgeons on February 18, 1932.

ANATOMY.

Before dealing with the subject proper it is essential that the anatomy of the pelvis be briefly discussed, more especially the surgical anatomy of the pelvic floor and the structures that hold the uterus in its normal position of anteversion.

Anatomy of the Pelvic Floor.

1. The pelvic floor is formed by the fascia-covered *levatores ani* and coccygeal muscles extending from the lateral bony walls to meet their fellows of the opposite side, except anteriorly, where there is a

space between the former. This space is completed by the urogenital diaphragm, through which the urethra and vagina pass. So important surgically are the *levatores ani* and urogenital diaphragm that they must be considered in more detail.

2. The *levatores ani* take an extensive origin from bone and fascia. From a linear origin they arise bilaterally, in front from the dorsal surface of the pubis for 2·5 centimetres (one inch) and then from the fascia covering the mesial surface of the *obturator internus* as far back as the spine of the ischium. From this broad origin the fibres sweep dorsally and medially to meet each other around and behind the anus.

The fibres originating from the back of the pubis form two distinct muscular bands, the pubo-coccygei, and are surgically the most important parts of the levatores. In point of fact they are the only parts of the muscles of which the practical gynæcological surgeon need have knowledge, because the remaining fibres of these important structures are inserted either on to the coccyx, join with the muscles of the opposite side, or are inserted into the posterior part of the ano-coccygeal ligament and may be left to the tender mercies of the proctologist called upon to do a radical Miles or Kraske operation.

The perineal repair surgeon's chief concern, the pubo-coccygei, originating, as before stated, from the posterior surface of the pubis, pass directly backward, embracing the vagina as they proceed to their insertion. Some of the fibres unite with the fibres of the external *sphincter ani*; others pass directly to the anterior part of the ano-coccygeal ligament; while still others join with the fibres from the opposite side posterior to the rectum, some mingling with the longitudinal fibres of that organ.

3. The urogenital diaphragm is the other important structure which completes the pelvic floor anteriorly by filling in the space between the pubo-coccygei muscles. It is attached to the inner margins of the inferior rami of the pubic bones anterior to the tuberosities of the ischii, its sharp posterior border marking the anterior boundary of the ischio-rectal fossæ. It is pierced by the urethra and vagina and fuses with the fascia of these organs. Its dorsal surface is attached to the fascia covering the lower part of the *levatores ani* and lends support to the fibres of the pubo-coccygeal division of these muscles.

The deep transverse perinei muscles, arising from the inner surfaces of the tuberosities of the ischii between the layers of urogenital diaphragm and occupying the major part of its posterior half, are attached along with the anterior fibres of the external *sphincter ani* to the so-called perineal body.

The anatomy of the pelvic floor is illustrated in Figures I to VI.

Studdiford regards this body as made up of involuntary muscle fibres which unite not only the above-mentioned muscles, but also the pubo-coccygei to the perineal tendon or body. As far as he is able to determine, no fibres of these muscles directly unite between the vagina and rectum.

Whether some of the fibres interlace between the vagina and rectum, as most authorities think, or are united by involuntary muscle, as Studdiford thinks, it is obvious that the pubo-coccygei, external *sphincter ani* and *transversus perinei*, with their surrounding fasciæ, all form part of one muscular mechanism and have their *point d'appui* at the centre of the perineum.

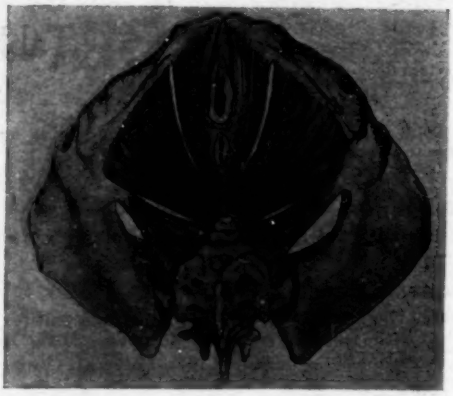

FIGURE I.
The three segments of the *levator ani* muscle: the pubo-coccygeus surrounding the vaginal and rectal canals, the ileo-coccygeus and the ischio-coccygeus. (After Thompson.)

The Uterine Supports.

So much for the surgical anatomy of the pelvic floor. Now let us consider the structures which hold the uterus in its normal position of anteversion, or rather the factors that prevent it from going beyond certain limits but permit free movement within those limits.

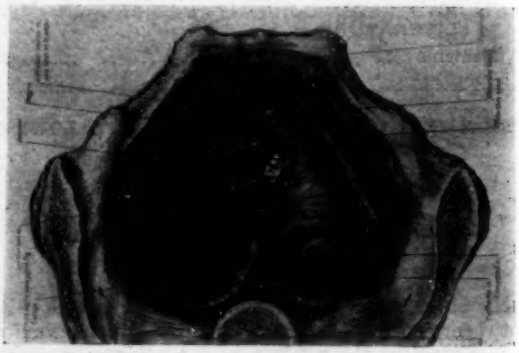

FIGURE II.
The *levatores ani* seen from above. (After Deaver.)

This subject has given rise to prolific discussion and has inspired an enormous literature, which has advanced us through three distinct phases to our present knowledge.

At first it was considered that the uterus maintained its normal position, with its limited range of movement, solely by four sets of ligaments—the utero-vesical and round ligaments in front, the

utero-sacral behind, and the broad ligaments laterally.

The second phase proved the value of the pelvic diaphragm, that is, the *levatores ani* and their associated muscles with their fascial coverings as the essential factors in keeping the uterus in place.

The third phase showed that there were still essential supports that had been hitherto neglected

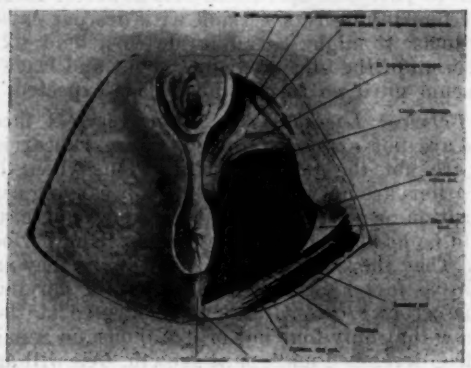

FIGURE III.
Anterior layer of urogenital trigone removed, showing *transversus perinei*, bubo-cavernosus and ischio-cavernosus muscles. (After Bumm.)

in the consideration of this question, namely, those lying in the space between the muscular diaphragm below and the peritoneo-muscular ligaments above. These intervening supports consist of the fascial and connective tissue surrounding and attached to the uterus, cervix and vagina, as well as the fascial coverings of the rectum and bladder, which con-

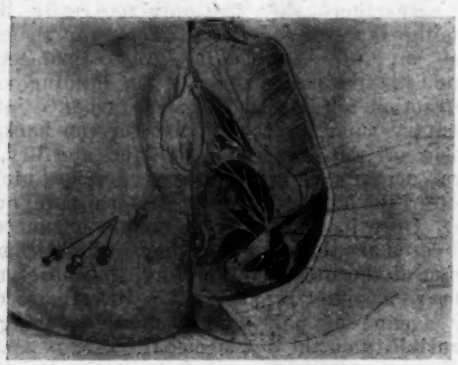

FIGURE IV.
Section showing nerve supply of perineum. (After Bumm.)

stitute the *fascia propria* of these organs and are merely ensheathing prolongations from the parietal pelvic fascia.

Around the blood vessels, nerves, lymphatics and ureters this tissue is especially condensed in the form of sheaths which run from the side walls of the pelvis to the uterus and constitute the real support of this organ. Those surrounding the uterine vessels are especially condensed and are given the name of *ligamenta colli* or transverse cervical ligaments. The existence of these ligaments and the important part they play in the support of the uterus are well demonstrated in the course of the operation of vaginal hysterectomy. If you watch this operation being performed, you will observe the great difficulty the operator has in pulling down the cervix very far until the uterine vessels, and

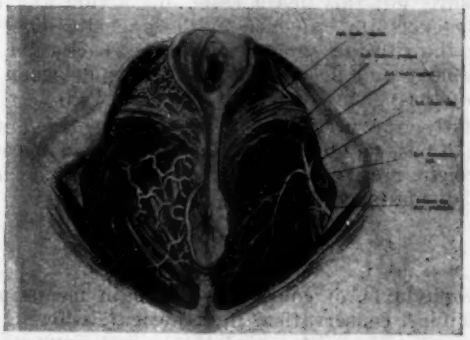

FIGURE V.
Vascular supply of perineum. Left, arteries; right, veins. (After Bumm.)

along with them the so-called transverse cervical ligaments, have been divided.

The cardinal ligaments of Bonney extend outwards from the upper part of the vagina in a fan-like expansion and are anchored to the pelvic wall and floor of the pelvis. These ligaments play an important part in maintaining the vault of the vagina as well as the uterus in position, and are clearly demonstrated after the transverse cervical

FIGURE VI.
Showing the relation of the *levatores ani* to the *sphincter ani*. (After Kelly.)

ligaments are cut through and the ureters pushed aside during the performance of Wertheim's operation for removal of carcinoma of the *cervix uteri*. Only after they are cut through can the uterus and upper part of the vagina be removed.

The pubo-cervical ligaments under the bladder are also a reality and not a myth.

Thus, to recapitulate, the factors that assist in maintaining the uterus within normal limits, or

rather assist in preventing its remaining permanently beyond the normal limits are: (i) the covering peritoneo-muscular ligaments above; (ii) the supporting muscular diaphragm below; and (iii) the fascial sheaths, vascular, ureteral, vaginal, vesical and rectal, between these two.

Another important factor in maintaining the uterus in the anterior position is intraabdominal pressure, but this has a reversible action and may easily exert its influence in the opposite direction once the uterine supports allow of backward displacement and descent of the uterus or when the tilt of the pelvis is at fault.

Lastly, the uterus itself may be regarded as a kind of passive factor, as it is only when it increases in weight or size that it enters as an active factor into displacements.

TREATMENT.

Prophylaxis.

Prophylaxis, of course, in the main means good midwifery, conservatism in treatment, allowing the patient her own time, and in the judicious use of the forceps as well as in gentle handling in expressing the placenta. It implies thorough asepsis to prevent that excessive softening which accompanies puerperal infection. It implies also careful approximation of any torn muscles or fascial sheaths of the pelvic diaphragm at the time, posturing the patient during the puerperium and avoiding the continuous dorsal position, preventing the patient getting up too early and even the temporary use of a pessary, when there is a tendency to or actual retro-displacement. Above all, the immediate measure of prophylaxis is the maintenance of the general health and vitality of the patient during the antenatal period.

Lastly, all conditions tending to increase the intraabdominal pressure during involution, such as lifting, strenuous efforts *et cetera*, should be guarded against, especially in the presence of over-distension of the bladder or rectum. To illustrate the effects of intraabdominal pressure, one might cite those rare cases of acute retroversions in young girls who, from feelings of embarrassment when in mixed company, refrain from emptying a full bladder before indulging in a strenuous exercise, such as tennis. The uterus being tilted back by the full bladder, the diaphragm fixed for a supreme effort, the intraabdominal pressure comes falling with piston-like force on the anterior aspect of the *fundus uteri*, which shoots back like an umbrella caught on the wrong side by the wind. That these mechanical displacements can occasionally occur in the non-puerperal uterus shows how much more the recently delivered woman, with her large, heavy, puerperal uterus, should avoid all forms of strain, such as incautious lifting of a heavy baby, putting up a stiff window *et cetera*.

Conservative Neglect.

Certain of the minor injuries resulting from childbirth require no immediate treatment.

1. *Perineal Lacerations.* Many of the complaints frequently ascribed to lacerated perineum, such as pelvic backache, fatigue *et cetera*, have quite another cause, and it is often remarkable how little discomfort patients may experience from even extensive lacerations of the perineum and rectocele if there is no descent of the uterus or bladder. If such patients are in the child-bearing period, it is better to postpone operation. If, however, there is an accompanying retroversion with descent causing symptoms, it might be advisable to attend to the correction of the uterine displacement and leave the perineum until no further births are expected.

2. *Cervical Lacerations.* When cervical lacerations are not extensive, do not cause miscarriage, and are not the seat of bad erosion, when these lacerations are not infected or are not causing septic absorption or are in point of fact symptomless, they should be left alone until the child-bearing period is over. Then they should be attended to, as they are a causative factor in the development of carcinoma of the *cervix uteri*. Graves has collected statistics to show that only four out of five thousand repaired cervices developed malignant growth. All will agree that the incidence of cancer is very much greater where cervical tears are present. Therefore, it seems a reasonable preventive measure to repair all cervices after or about the menopause.

3. *Retro-Displacements.* Simple or uncomplicated retro-displacements naturally fall into two classes, those that give symptoms and those that do not. The latter do not call for any treatment, and if discovered in the course of routine examination it is as well not to rivet the attention of the patient on the condition. So many men, too lazy to go into these cases thoroughly, are only too ready, like a drowning man grabbing at a straw, to put the entire blame on the unoffending retro-displacement. Anæmia is often responsible for the bleeding, errors of refraction for the headache, disturbances of the alimentary canal or renal tract for the backache, stenosis of the cervical canal for sterility, the central nervous system for dysmenorrhœa, inflammation of the bladder for bearing-down pain, and so forth. Only in half of these simple or uncomplicated cases are the symptoms due to the mechanical position of the uterus. Therefore, it behoves us, if we desire a sound reputation, to investigate every other avenue of pain before finally placing the responsibility on the displacement.

The watchword is conservative neglect in the uncomplicated cases. Even when conception takes place the majority of displaced uteri right themselves, and at the worst require only lifting up manually and the temporary use of a pessary until the fourth month.

Non-Operative Treatment.

Certain, even severe, disabilities due to childbirth are not suitable for operative measures, but require some treatment for the relief of symptoms.

In these cases you must undertake the reposition of the bladder, rectum or uterus and their retention

in proper position by pessaries. To my mind there are only three types of patient in whose treatment the pessary has a legitimate permanent use: (i) old people nearing their term of life; (ii) patients unable to withstand operation through some physical defect of the heart, lungs *et cetera*; (iii) patients who absolutely refuse operation. There is a fourth class that requires its temporary use, namely, those left with a retroverted uterus after childbirth or those suffering from a retroverted pregnant uterus. Both types have been referred to previously.

Operative Treatment.

Perineal Lacerations.

By far the commonest injury due to childbirth is rupture of the perineum, or, to express it anatomically, separation of the *levatores ani* and tearing of their ensheathing fascia, stretching of the urogenital diaphragm and transverse perineal muscles, accompanied by more or less laceration or stretching of the skin. Each perineal tear must be considered on its merits, for the pubo-coccygeal part of the *levatores ani* may be stretched, torn and retracted on one or both sides or even detached from their origin behind the pubis, so that they appear to be lying transversely when exposed (see Figures VII and VIII).

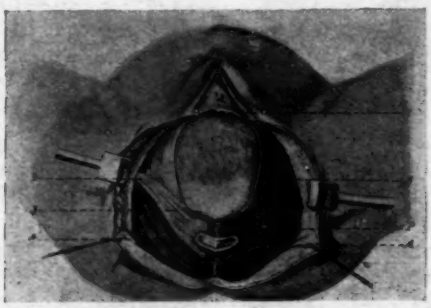

FIGURE VII.
Shows stress placed upon the pubo-coccygei and transverse perinei muscles and their covering fasciæ by the presenting head. (After Savage.)

When a mild degree of separation and retraction of these muscles and of the trigone on both sides occurs, we get what is clinically termed relaxation of the vaginal outlet (Figure X, *B*).

When a severe laceration occurs in one sulcus, leaving the other side intact, we get a separation and retraction of the pubo-coccygeus and trigone on that side with the *sphincter ani* drawn to the unaffected side. This is especially so if the muscle is torn away from its origin as well as from its insertion (see Figure X, *C*).

If both sulci are badly torn, the pubo-coccygeal muscles, together with the urogenital trigones, sag outward and retract towards the pubic bones. The external *sphincter ani* drops backwards and towards the least injured side.

When the laceration is complete through the *sphincter ani* there is usually little damage done to the pubo-coccygei and trigones, so there is less sagging and retraction than when the laceration has taken place in one or both sulci (Figure X, *D*).

However, all three types of laceration may occur in bad cases, and in the most extreme cases the

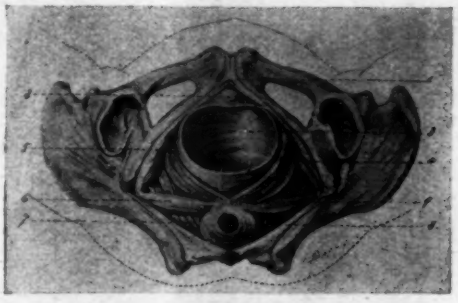

FIGURE VIII.
Shows stretched musculature of pelvic floor after full distension by the presenting head. (After Bumm.)

muscles are also torn from behind the pubis and lie in a transverse retracted position. Thus it will be seen that all types and combinations of lacerations might occur, and it behoves the operator to have clearly before his mind the nature of the

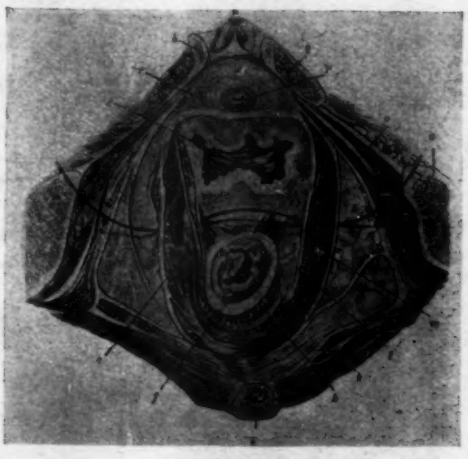

FIGURE IX.
Transverse section through pelvis, showing point at which the pubo-coccygei are united in perineal repair operations. (After Liepmann.)

injuries he is about to repair (see Figure X, *A*, *B*, *C*, *D*).

It goes without saying that an attempt should be made to repair all perineal injuries at childbirth. However, many are imperfectly repaired and many are unrecognized or wilfully left to look after themselves. If it were not so, gynæcologists would be deprived of a large section of their operative work.

The different methods of late repair are legion, but the operation which I propose to describe is equally suitable to all cases, with slight modifications according to the needs of the condition, such as when the *sphincter ani* is torn through. The

principle underlying the operation is the thorough exposure and union in the middle line of the pubo-coccygeal muscles (Figure IX). Normally these structures do not actually meet in the middle line between the vagina and rectum, but in all efficient operations they are artificially drawn into it and fixed permanently there by ligatures, as they are the only structures capable of restoring the physiological tone of the perineal muscular system. The transverse perinei and trigones are too weak and usually too much damaged to be depended upon.

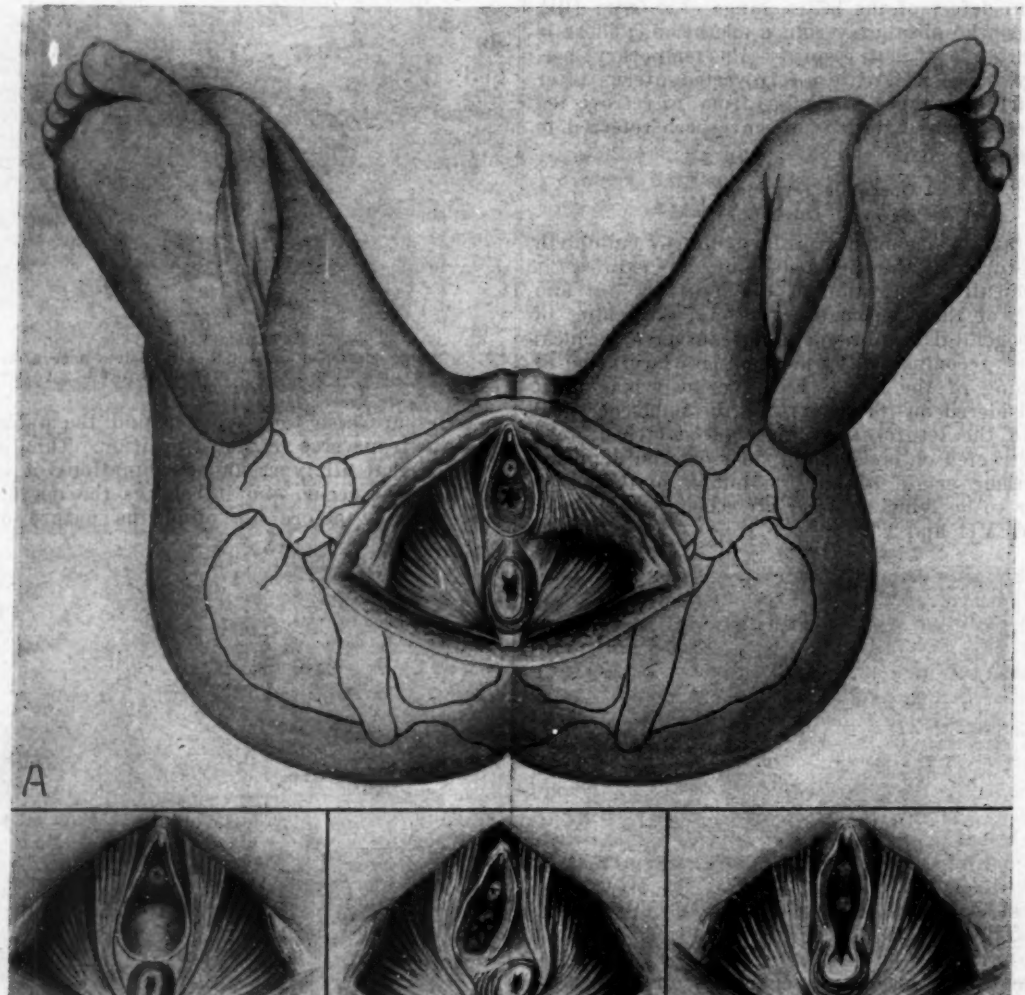

FIGURE X.

A. Diagrammatic picture of dissection of perineal floor. The fascial investment called the urogenital trigone and the enclosed *transversus perinei* muscle have been cut away on the right side, showing underlying pubo-coccygeal part of *levator ani* muscle. On the left side the trigone is intact, with the *transversus perinei* muscle enclosed between the posterior part of its two layers, forming the anterior boundary of the left ischio-rectal fossa.

B. Vaginal relaxation showing separation of the pubo-coccygeal sections of *levatores ani* and trigones, which sag outward and retract towards the pubic bones. The external *sphincter ani* drops backwards and towards the least injured side.

C. Laceration in right sulcus tearing and separating right pubo-coccygeus; the untorn left pubo-coccygeus and trigone pull the anus over to the left side.

D. Complete tear through to rectum; the pubo-coccygei and trigones are usually not damaged or much separated when this occurs. In some cases, however, laceration through the *sphincter ani* and in one or both sulci might occur. (Drawn by D. J. Farrell.)

In my opinion the term perineorrhaphy should be dropped and the operation called union of the *levatores ani* or, more correctly, pubo-coccygeal division of the *levatores ani*.

A. Operation for the Union of Levatories Ani.—The operation for the union of the *levatores ani* may be described as follows:

1. Attach a sheet to the buttocks so as to cut off the anus. This should be done by stitches rather than by clips, as they prevent more effectively any displacement of the protective anal sheet. Paint the whole of the vagina and perineum with Bonney's blue.

2. Carefully determine the extent of the perineal tear and clip the *labia minora* and hymen on each side with a Duval's forceps so that, when brought together, they will leave a sufficiently large introitus.

3. Cut from one forceps to the other along the junction of skin and vaginal mucosa; attach skin edge of the incision to sheet with Moynihan's clip forceps. Seize the mucosal edge with Spencer Wells forceps and dissect up the vaginal flap from underlying rectum with scissors. At first it will be found to be firmly bound to the rectum and *sphincter ani* by old cicatricial tissue. However, as soon as this is cut through, the separation of the remainder of the flap by blunt dissection is easy. Anatomically the structures cut through are skin, superficial fascia, deep fascia, anterior and posterior layers of the urogenital diaphragm, with transverse perinei in between. By so doing, we expose a triangular space floored by the rectum and bound laterally by the pubo-coccygeal fibres of the *levatores ani* muscles. These might be at a very deep level, even up to 5·0 centimetres (two inches) deep, as can be ascertained by palpating through the vaginal mucosa or directly into the exposed triangle (Figure XV).

4. The anterior borders of the pubo-coccygei being exposed and any severe hæmorrhage arrested, three plain gut sutures (number 6) are passed through them from the anal aspect upwards. The highest must not have too much tension on the muscles when they are drawn together. For the time being they are not tied (Figures XV and IX).

5. The next stage is to remove a triangular vaginal flap so that there will be no redundancy of mucosa when the edges are brought together. Before cutting the flap, tie a stitch of plain gut (number 3) through the full thickness of the mucosa at the apex of the triangular flap about to be removed (leave this long), remove the flap and bring together the cut edges by continuing to sew from the previously placed stitch to the vaginal orifice.

6. The wound is now cleared of all clots with saline solution and the sutures through the pubo-coccygei are tied snugly, but not too tightly.

7. The structures superficial to the levatores, namely, the deflected urogenital diaphragm with its contained transverse perinei, are brought together over the united levatores, obliterating all blind space by three interrupted plain gut sutures (Figure XVI).

8. The skin is sewn up with interrupted plain gut sutures.

9. Plug the vagina with iodoform gauze so as to press tightly down the vaginal mucosa on the sewn muscles and rectal wall. A firm vaginal pad affixed outside will further help to control any possible hæmorrhage.

The steps of this operation are illustrated in Figures XI to XVI.

FIGURE XI.
Palpating anterior border of muscle in the operation for union of the pubo-coccygeal muscles. (After Kelly.)

B. Operation following Rupture of the Sphincter Ani.—The operation for a complete tear is identical in principle with the foregoing operation, but includes additional steps for the repair of the tear

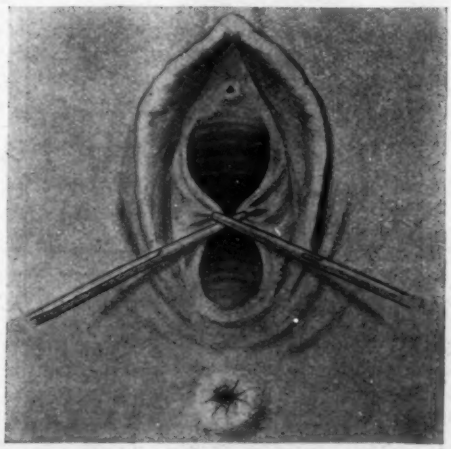

FIGURE XII.
Assessing the size of introitus.[1]

in the rectal wall and the union of the separated ends of the *sphincter ani* muscle.

The primary incision, first between skin and vaginal mucosa, then between the mucosa of the vagina and of the rectum, is continued down each

[1] Figures XII, XIII, XIV and XV are from drawings lent by Mr. Reginald Morrison.

side to the dimple which indicates the ends of the retracted *sphincter ani*. The vaginal mucosa and the rectal mucosa are well separated, the freshened edges of the rectal mucosa are sewn together with interrupted chromicized gut sutures, the knots

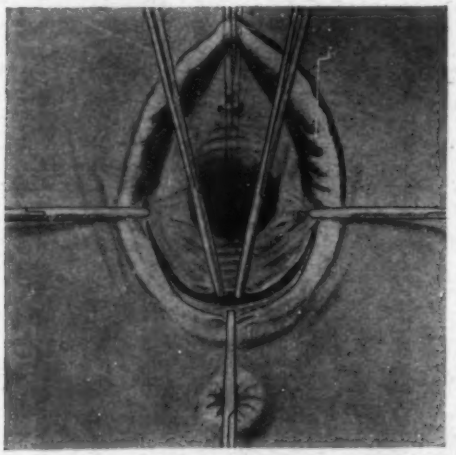

FIGURE XIII.
Incision through the muco-cutaneous junction.

being towards the rectum. The torn ends of the sphincter are now dissected out and united in the middle line by a fine chromicized gut suture with a few reinforcing sutures of plain gut. The remainder of the operation is done on exactly the

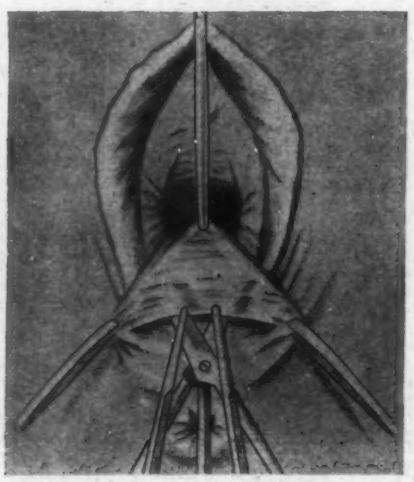

FIGURE XIV.
Freeing the vaginal mucous membrane. After cutting through skin, fascia, anterior and posterior layers of urogenital diaphragm, the rectum can be pushed off by the finger.

same lines as described above. The first stitches through the levatores reinforce and help the suturing of the *sphincter ani*, where they are united across the anterior wall of the anal canal.

In former times much stress was laid on the shape and size of the flap of vaginal mucosa that was removed. To my mind this is of no importance in restoring the physiological function of the perineum, and so long as the redundant portion is

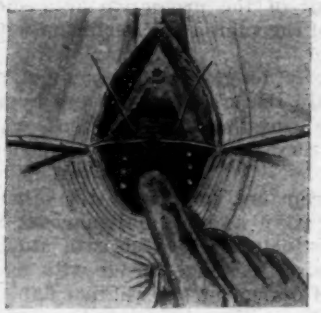

FIGURE XV.
The vaginal flap cut away, anterior borders of the pubo-coccygei are exposed. The dots represent where stitches are passed through them.

cut away, there is no need whatever for elaborately shaped butterfly flaps *et cetera*.

The chief point is to cut through the urogenital diaphragm so as to expose thoroughly and unite the pubo-coccygei muscles. There is no need to cut through their fascial covering to expose the actual muscle fibres before bringing them together, as transfixing them in their sheaths, contrary to general belief, leads to no harm. I have never found it necessary to repair the *fascia propria* of the rectum before uniting the pubo-coccygei. The efficiency of simple union of the pubo-coccygei can be demonstrated by uniting them under sacral or

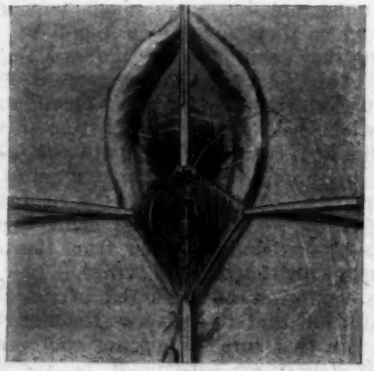

FIGURE XVI.
Vaginal mucosa, fascia and urogenital diaphragm are sewn over the united pubo-coccygei; skin alone remains to be approximated.

local anæsthesia and asking the patient to cough during the process. This will also show that the sutures need not be carried too far up to secure a physiologically functioning perineum. Another

important point is that plain gut should be used throughout and that the ligatures should be tied snugly, but not too tightly.

Cervical Lacerations.

Cervical lacerations occurring during delivery should be left alone unless uncontrollable hæmorrhage results, when the part must be exposed and the tear sutured.

They should be treated later when they are the cause of repeated miscarriages, or bleed on coitus, or when they are chronically infected and cause septic absorption with severe backache due to lymphangitis of the utero-sacral ligaments, or give rise to intractable leucorrhœa leading to sterility. The operative measures should be diathermy for the mild cases, repair for the more severe cases and amputation or enucleation for the extreme cases. The symptomless tears can be left, as stated previously, until after the child-bearing period is over.

Retro-Displacements of the Uterus.

There is no aspect of the question of operative treatment of injuries due to childbirth that has given rise to such a diversity of opinion and such a variety of technique as the correction of retro-displacement of the uterus. It has been a standing joke amongst general surgeons that gynæcologists have had to devise something over one hundred different operations for the correction of this one disability. I do not intend to bore you by even enumerating these procedures, most of which are unsound in principle and planned regardless of anatomical facts. I shall content myself with dividing them into four groups and at the outset express my conviction that, except for a few operations in the fourth group which have stood the test of time, all should be discarded.

The groups are: (*A*) vaginal fixation or hysteropexy, (*B*) ventral suspension or fixation, (*C*) shortening and fixation of the utero-sacral ligaments, (*D*) shortening and fixation of the round ligaments.

(*A*) *Vaginal Fixation or Hysteropexy.*—Ventral fixation or hysteropexy operations were first originated by Mackenrodt and are performed by opening the anterior vaginal wall, pushing up the bladder and suturing the uterus to the vaginal wall to the level of the isthmus. The originator later modified the procedure by suturing the bladder to the fundus. Duhrssen and Vineberg invented modifications. These operations are never performed at the Royal Prince Alfred Hospital and should be mentioned only to be forgotten.

B. Ventro-Suspension or Fixation. — Olshausen and Howard Kelly, the originators of ventro-suspension or fixation, as well as the originators of the various modifications (Vineberg, Leopold and others), have a lot to answer for on account of the wide publicity they gave these procedures, which fly in the face of every anatomical consideration. Notwithstanding the many world-renowned surgeons who practise these operations, I have no hesitation in stating, from my own experiences, that they should never be practised on any woman during the child-bearing period. Their use, if any, should be confined to those instances in which the uterus tends to fall back after both tubes have been removed. No uterus, likely to become pregnant, should ever be fixed forward by a method which causes so much suffering and requires so many second operations for the complications that follow in its path. The procedure became popular on account of its ease of accomplishment and the little time taken to execute it. Advocates of this method claim that there is little or no interference with subsequent pregnancy. It is wonderful how accommodating Nature sometimes is. As a matter of fact the operator is very rarely present at the next labour and the surgical complications are usually attended to by others.

Every surgeon of experience has knowledge of fatalities which have resulted from ventro-suspension or fixation, that is, intestinal obstructions, ruptured pregnant uteri and fatal cases of dystocia *et cetera*, just as every practitioner can give numerous instances of painful carrying or delayed and complicated labour, not to mention the numerous cases of dysuria that follow in the track of these operations (see Figures XVII and XVIII).

FIGURE XVII.
Showing the false ligaments often created by ventro-suspension and fixation operations. (After Kelly.)

Even granting that a considerable number of women who have had suspension or fixation done pass through future pregnancies with ease and comfort, an operation that is followed by so many complications, as well as occasional fatalities, should be discarded. I would go so far as to say that even in those cases in which there is no possibility of child-bearing these operations should not be used if there is any other method by which the displacement can be rectified.

The uterus is not a static, but a dynamic organ, an organ with a tendency to independent action. Just imagine the unhappy state of the viscus as it struggles against a non-giving fixation, more especially when it is itself feeling the ever-changing waves of intraabdominal pressure.

Personally, I should like to see gynæcologists ban the fixing of a vital organ like the uterus to the

anterior abdominal wall. I should like to see them depend entirely on thorough repair of the pelvic floor, on shortening of the upper peritoneo-muscular ligaments, and on intraabdominal pressure to keep the uterus in its normal position of anteversion.

FIGURE XVIII.
Illustrating a dystocia resulting in a case in which pregnancy occurred after a ventro-fixation. (After Childs.)

C. Shortening and Fixation of Utero-Sacral Ligaments.—Operations for shortening the utero-sacral ligaments so as to draw the cervix upwards and thereby tilt the fundus forwards have been devised by Wetrheim and Jellett and others.

These operations have never had a vogue in the Royal Prince Alfred Hospital, except as part of an operation for complete procidentia.

Thus we are left with the fourth group to correct retro-displacements.

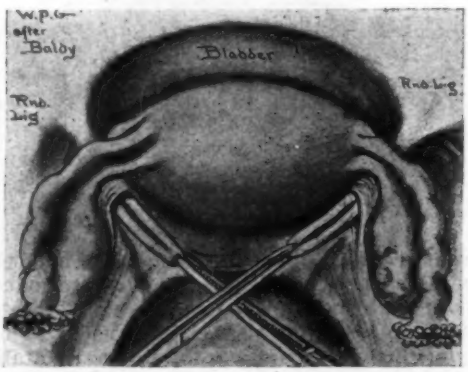

FIGURE XIXA.
Baldy-Webster operation for retroversion, first stage. (After Graves.)

D. Shortening and Fixation of the Round Ligaments.—Fortunately, most authorities now agree that instead of depending on adhesions, it is far better to make use of the natural anterior supports to bring the uterus forward, and though the round ligament has only a partial rôle in keeping the uterus in a normal position, it has proved of great service to the operating gynæcologist in restoring a displaced uterus to position. In point of fact, all operations of any use in this complaint depend on shortening and fixing these ligaments and may be roughly divided into two classes:

1. Those that on completion of the operation depend on the thin inguinal part of the round ligament to support the uterus, that is, the Webster

FIGURE XIXB.
Baldy-Webster operation for retroversion, completed. (After Graves.)

Baldy sling operation, the Dudley technique, the Wyllie procedure, the Mann, Long techniques *et cetera* (see Figures XIXA, XIXB and XX).

2. Those that depend on the strong uterine portion of the round ligament, namely, external shortening of the round ligaments through the inguinal canal (Alexander's operation) or internal shortening with extraperitoneal fixation of the round ligaments by Gilliam's original operation or

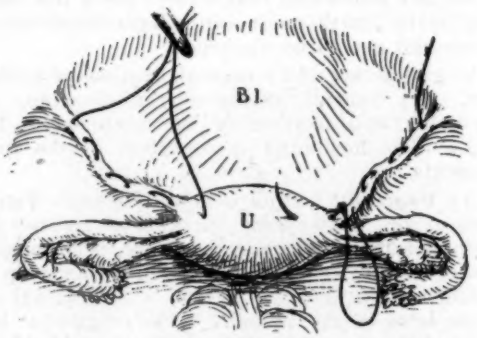

FIGURE XX.
Plication of round ligaments, Dudley technique. (After Crossen.)

some modification of it, such as Bonney's, Simpson's, Crossen's, Mayo's, Kelly's or Ferguson's.

All operations of the first class should be discontinued and the second class entirely depended on as the only means of securing good end results. The best of these, in my experience, is shortening of the round ligaments through the inguinal canal, first suggested by Alquie in 1840 and later improved by the two British surgeons Alexander and Adams. This operation is anatomically sound and, when

completed, depends on the strong uterine end of the ligament to support the uterus (see Figures XXI, XXII and XXIII). In a long experience at the Royal Prince Alfred Hospital I have come across no recurrence when this operation had been performed by a competent surgeon.

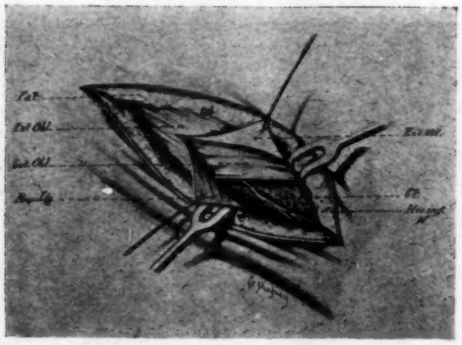

FIGURE XXI.

Alexander-Adams operation. The aponeurosis of the external oblique is divided and held back by hooks and the internal oblique and transversalis are exposed. The ilio-inguinal nerve runs over the tissue that lies on the *fascia transversalis*. In this loose tissue is buried the round ligament. (After McKay.)

Some time ago I met with one patient who had been operated upon by Mr. Joseph Foreman thirty-seven years previously by the old Alquie method, in which the canal is not opened; and although the patient had had five children subsequent to the operation, the uterus was still held up in good position, notwithstanding a ruptured perineum and a certain amount of bladder and rectal prolapse.

External shortening is eminently suitable for simple uncomplicated cases in both parous and nonparous women, but unfortunately it is difficult in

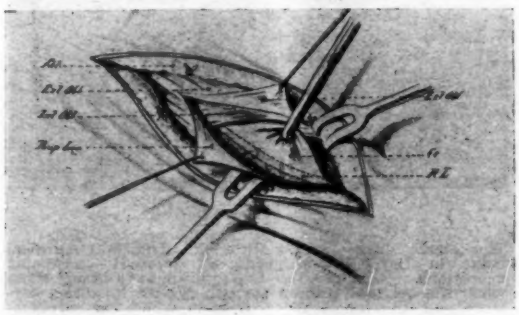

FIGURE XXII.

Alexander-Adams operation. The loose tissue that surrounds the round ligament has been seized by dissecting forceps and turned over, and on the under surface of this tissue the round ligament can be most easily found. (After McKay.)

the latter, on account of the thinness of the ligaments and the difficulty of finding them. With patience and care they can always be found.

In complicated cases it is still the best method of bringing the uterus forward and, if the patient is in good condition after the abdominal complication has been attended to, external shortening should be done. To avoid the three scars, a transverse incision may be used, provided no sepsis is present. Franz calls this operation *Laparotomie Alexander*, and in his book describes only two operations for

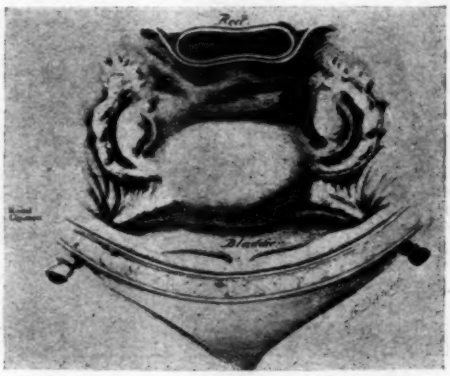

FIGURE XXIII.

Showing the position that the uterus assumes when both round ligaments have been pulled out sufficiently. (After Döderlein and Kronig.)

retro-displacement, *Alexander Adamsche* operation and *Laparotomie Alexander*. Time or inflammation might demand other methods of shortening; then internal shortening by Gilliam's original operation, or preferably one of its modifications (Bonney, Simpson, Crossen, Mayo, Kelly or Ferguson technique), is recommended, as all conform in principle to the Alexander-Adams in that they depend on the stout uterine end of the ligament when the operation is completed (see Figures XXIV, XXV and XXVI).

Of these operations Bonney's is the operation of choice. The original Gilliam operation has only a

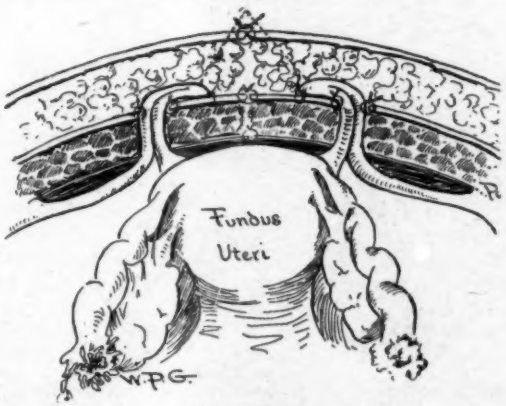

FIGURE XXIV.

Gilliam's operation. (After Graves.)

limited application because the ligament is caught about midway between the uterus and the internal abdominal ring and pulled directly forwards, and thus only those patients who have a wide salpingo-ligamentous angle can be selected for this operation.

When the angle is small the tube will be kinked into a hairpin bend and drawn into the wound through the rectus muscle (see Figure XXVII, *A*). Every surgeon of experience has had to reopen for such accidents. The Bonney operation and other modifications mentioned avoid this possibility by

FIGURE XXV.
Simpson's modification of Gilliam's operation. (After Graves.)

drawing the ligament along its natural oblique route. Thus, to my mind, the only operative methods suitable for retro-displacement are, in their order of merit:

1. External shortening and fixation of round ligaments: Alexander-Adams.
2. *Laparatomie Alexander* for complicated cases.
3. Internal shortening and external fixation of round ligaments: Gilliam-Bonney.

Personally I prefer the first two. The third group are performed only when some reason prevents the carrying out of either 1 or 2.

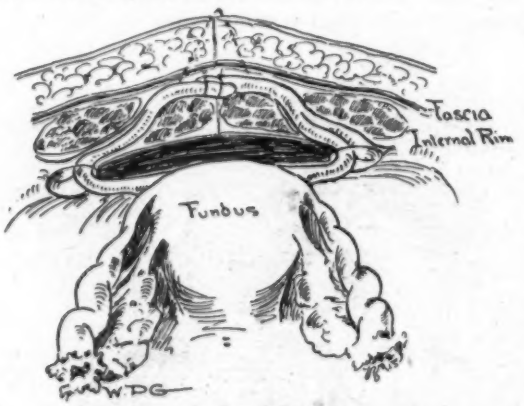

FIGURE XXVI.
Mayo's modification of Gilliam's operation. (After Graves.)

Finally, it is unnecessary to stress the importance of attending to any relaxation or tear of the pelvic floor before attempting any operation on the upper uterine supports for displacement.

Descent of the Bladder.

Cystocele and descent of the bladder *per se* are not very common. Mild cases usually accompany laceration of the perineum or retroversion of the uterus and are cured by the procedures undertaken for the correction of these disabilities. Occasionally operation is needed for them alone, and the best is that devised by Eden and Lockyer. They push the bladder off the cervix, well up behind the pubis

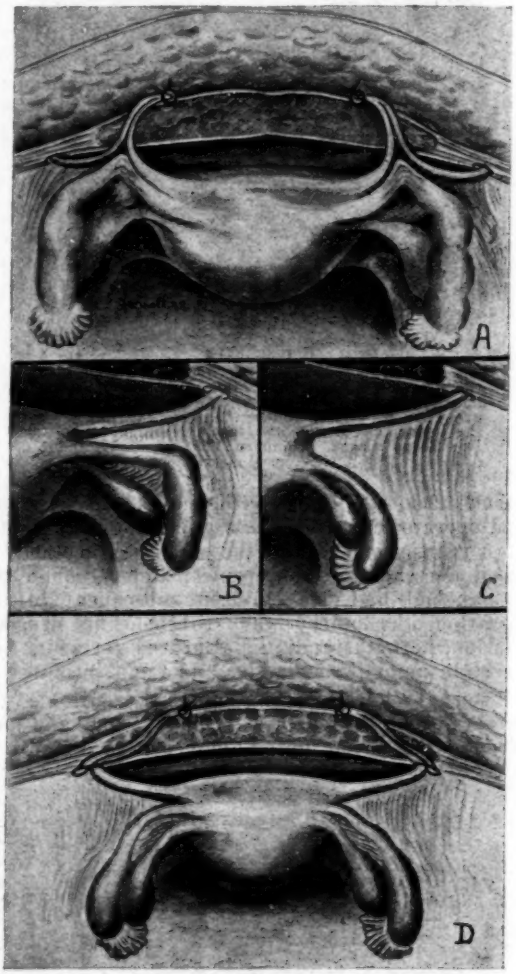

FIGURE XXVII.

The above drawings illustrate an important surgical point in the Gilliam group of internal shortening operations. *A* shows the Fallopian tube kinking effect when the original Gilliam operation, with its direct forward pull, is done in those cases in which the salpingo-ligamentous angle is narrow, as in *B*. The original Gilliam operation is suitable only in those cases in which the salpingo-ligamentous angle is wide, as in *C*, because the forward pull in such cases does not kink the tube or draw it into the abdominal puncture hole. Bonney's and similar modifications of the Gilliam operation pull the ligament laterally, as in external shortening, and are the only forms of internal shortening operations suitable for the narrow angle cases (*D*). (Drawn by D. F. Farrell.)

and laterally, expose the anterior parts of the pubo-coccygei and bring them together in the mid-line before sewing the vaginal mucosa over the denuded area (see Figures XXVIII, XXIX and XXX).

Severe cases of descent of the bladder usually accompany prolapse of the uterus, and their correction is but a part of the operation designed for the relief of that condition.

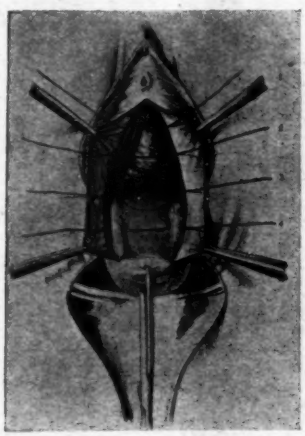

FIGURE XXVIII.
Eden and Lockyer's operation for radical cure of cystocele. The anterior parts of the pubo-coccygei are sutured below the bladder. (After Eden and Lockyer.)

Prolapse of Uterus.

Prolapsus uteri can be regarded as hernia of the pelvic floor, due to failure of several or all of the supports which maintain the uterus in its normal position.

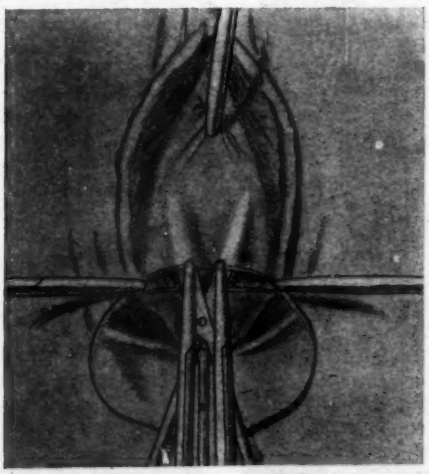

FIGURE XXIX.
Showing the Donald-Fothergill method of operating on cystocele. (From a drawing lent by Mr. R. Morrison.)

When considering which is the best method of correction, the surgeon should think in terms of the supports, and his first duty is to ascertain which are primarily at fault.

If the upper and middle supports are the chief offenders, the uterus will first retrovert, the long axis coming into the line with the axis of the vagina; it will then be pressed upon by constant misdirected intraabdominal pressure until the utero-sacral ligaments are so lengthened that the uterus gradually descends, rolling the vagina out from above downwards, even to the extreme of pulling the bladder and rectum after it. Such uteri are usually not increased in length.

On the other hand, if the pelvic floor is the chief offender, the bladder and rectum first roll out and ultimately pull on the cervix, lengthening the supra-vaginal portion of that structure, while the utero-sacral ligaments still hold out against the strain and will eventually drag out the uterus itself, when their resistance has been overcome. The vagina is rolled out from below upwards. In these cases the uteri are always increased in length.

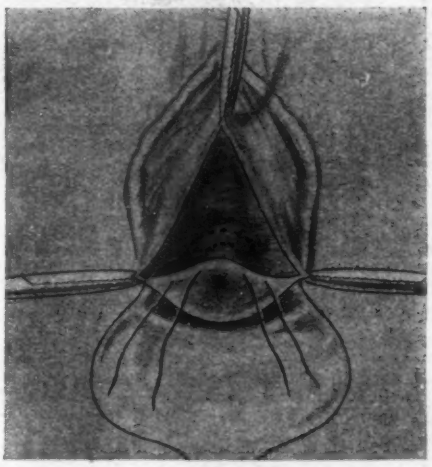

FIGURE XXX.
Showing the Donald-Fothergill method of operating on cystocele. (From a drawing lent by Mr. R. Morrison.)

If these two methods of descent *plus* the anatomical structures concerned be constantly kept before the mind of the operator, he will easily be able to reconstruct what has happened step by step from the complete procidentia back to the normal and so will know what type of operation is best suited for the correction of the disability.

We are indebted to the Manchester school for clarifying our ideas on the subject of repair from below, and I know of no operation for *prolapsus uteri* that is more satisfactory when properly performed than that devised by Donald and described so clearly by W. E. Fothergill. I cannot do better than give his description. The steps of the operation are shown in Figures XXXI, XXXII, XXXIII and XXXIV.

1. Pull the cervix down with two volsellæ.

2. Dilate the cervix and measure the length of the uterus in order to know how much must be removed to leave a uterus three inches long. If there is menorrhagia or if the uterus is enlarged, it may be curetted with advantage.

3. Pick up two points in the lateral vaginal fornices, each about one and a half inches from the *os uteri*. Pick

up a third point in the middle line behind the cervix where the posterior vaginal wall joins the cervix. Pick up a fourth point one-third of an inch behind the urethral orifice.

4. Join the four points by an incision through the whole thickness of the vaginal wall. Begin stripping off the vaginal wall behind the urethra and continue until the

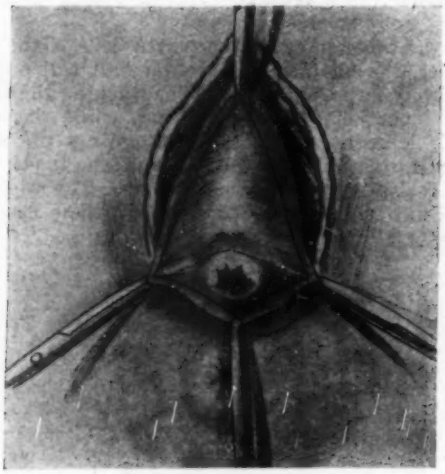

FIGURE XXXI.

Donald-Fothergill or Manchester operation for prolapse. Outlining incision through vaginal mucosa. The denudation from the bladder can be carried from above downwards or from below by making the extra incision represented by the dotted line.[1]

whole area of the vaginal wall within the incision remains attached only to the cervix. Clip round and round the cervix until a sufficient length has been freed from the parametrium.

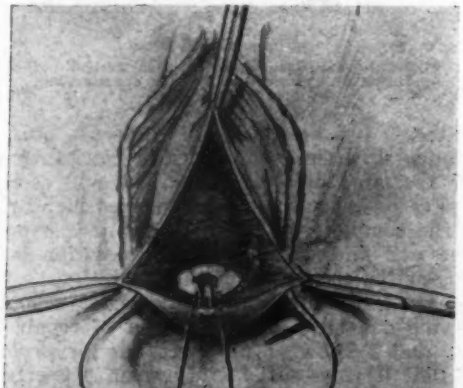

FIGURE XXXII.

Denudation complete and cervix amputated. First stitch in reforming external os.

5. Cut through the anterior half of the cervix with a knife and catch the stump with a volsella. Cut through the remainder of the cervix. Occasionally two or three bleeding points may now be tied with advantage, but this is rare if the clipping is done close to the cervix.

6. Begin stitching in the mid-line behind by passing a suture from the cervical canal through the uterine wall and through the vaginal wall. After tying it pass the next stitch to one side of it and the third on the other side. Continue until the cervix is covered in. Then pass

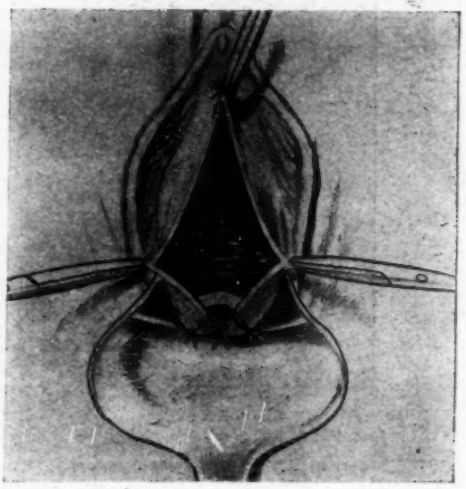

FIGURE XXXIII.

Posterior lip of cervix reformed.

a stitch from side to side, uniting the cut edges of vaginal wall just in front of the new *os*, which by this time should be tending to disappear from sight.

Cut off the stitches which have been put in the cervix and proceed with the suture of the wound, burying its sides together over the bladder by interrupted sutures until the last is put in just behind the urethral aperture.

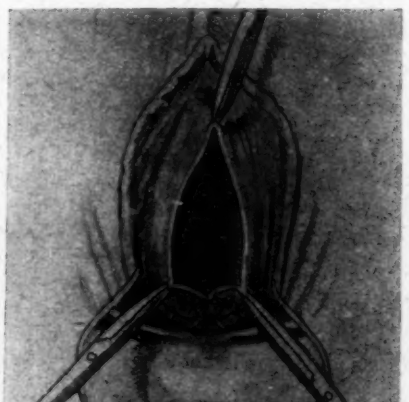

FIGURE XXXIV.

Anterior lip of cervix reformed. The next step is to close the denuded area from below upwards. As each successive stitch is tied the cervix is forced back into the vagina.

No buried sutures are required. As the stitches are tied the fingers must be put inside the vagina, the sutures thus being allowed to move freely up into the position they

[1] Figures XXXI, XXXII, XXXIII and XXXIV are taken from drawings lent by Mr. Reginald Morrison.

are to occupy in future. It is unfortunately not rare to see a colporrhaphy wound sutured with the uterus half out of the vagina. If the sides will come together before the parts have been put in the normal position, it is certain that not nearly enough has been removed. When the operation is done efficiently the new *os uteri* disappears upwards and backwards during the last stage of the suturing. Subsequently it is very difficult of access and it cannot be drawn down for inspection without considerable inconvenience. The operator should therefore make sure the bleeding from the stump of the cervix and from the parametrium has been controlled before going on to close the lower portion of the wound.

The description is clarity itself. The only point on which I should like to lay stress is that the bladder should be well freed and pushed up off the cervix so as to allow sufficient cervix to be amputated to leave a uterus of normal length.

This operation, when combined with a proper union of the *levatores ani*, will be effective in all prolapsus cases; only on rare occasions and in extreme cases will it be necessary to fix the uterus in the anterior position from above.

When this is necessary I always prefer to do an external shortening if the patient is not too old and has no adnexal complications; but if it is necessary to open the abdomen for some chronic complication and it is found that the repair work below would be assisted by a high fixation of the uterus, I prefer Richardson's operation, as performed by Mr. Thring. The round ligaments are cut at the internal abdominal ring and freed up to their cornual ends, the raw surfaces are peritonealized and the freed ligaments are brought out through the recti and attached in front of the aponeurosis as in Gilliam's operation. This should be done as high as possible without tension. In closing the abdomen the peritoneum is sewn to the anterior wall of the uterus. This operation should be done only when there is no possibility of childbearing, and fortunately most cases of advanced *prolapsus uteri* come to operation after the childbearing period.

Interposition Operations.—Many surgeons still prefer for *prolapsus uteri* the interposition operations, which consist in the main of interposing the uterus below the bladder and fixing its anterior surface to the vaginal wall and its posterior surface to the parietal peritoneum. They are performed by the vaginal route through an incision in the anterior fornix. These operations were once much favoured in Germany and still have a big following amongst American surgeons. Wertheim and Mackenrodt were amongst the first to advocate this operation. In 1923 I watched Mackenrodt perform his operation. He always did a preliminary amputation of the cervix before fixing the uterus to the vaginal wall below the bladder, and he told me that the unsatisfactory results obtained by others performing his operation were due to neglect of this detail. He assured me that there was no difficulty in subsequent childbirth. I must admit that Mackenrodt's operation of interposition, as performed by himself, looked a very suitable one for those cases in which there is a considerable descent of the bladder accompanying the prolapse.

However, if an interposition operation is decided upon, it is far better to carry it out by Jellett's technique, which provides for utero-sacral ligaments being isolated and fixed in front of the amputated cervix and the tubes being removed before the uterus is interposed below the bladder. Of course, it goes without saying that all interposition operations must be accompanied by a radical repair of the perineum with efficient union of the *levatores ani*.

Interposition operations have never been popular in the Royal Prince Alfred Hospital, and personally I have given them up entirely. The most practised operation is the Donald-Fothergill operation, which, with slight modifications and occasional accessory operations, can be made effective in every case of *prolapsus uteri*.

Removal of the Uterus.—Lastly, the treatment of prolapse by hysterectomy died a hard death. It was only after numerous recurrences that the practice of subtotal hysterectomy to cure this condition was admitted to be a failure. Certainly the operation devised by Graves, in which he amputates the redundant cervix and then does a subtotal hysterectomy, after which he fixes the small residual stump to the anterior abdominal wall, has met with a certain amount of success, but unless the uterus is diseased it is far better to retain and make use of it in the repair, as in Richardson's technique. However, there are certain cases of prolapse in which the uterus must be removed for some accompanying disease of that organ—malignant disease of the fundus, fibroids *et cetera*. In such cases the operation devised by Goffe and described by Mayo is the most useful procedure. The uterus is removed *per vaginam*, the broad and the round ligaments are sewn together under the bladder, the utero-sacral

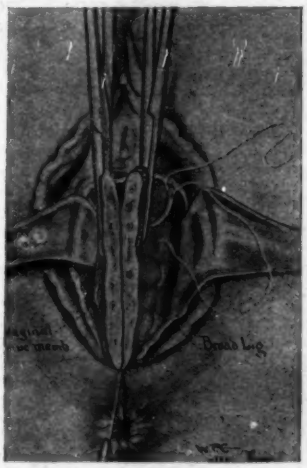

FIGURE XXXV.

Showing Mayo's technique in the Goffe-Mayo operation for prolapse of the uterus. Broad ligaments are caught with clamps and a running mattress suture of chromicized gut approximates the broad ligaments under the bladder after the uterus has been cut away. (After Graves.)

ligaments are fixed thereto, and the vaginal mucosa is closed over them, after which the *levatores ani* are firmly united below (see Figures XXXV, XXXVI, XXXVII, XXXVIII and XXXIX).

Other surgical injuries due to childbirth, such as inversion of the uterus and fistulæ, are becoming less common on account of the improvement in the standard of obstetrics, and no attempt will be made to deal with them in this paper.

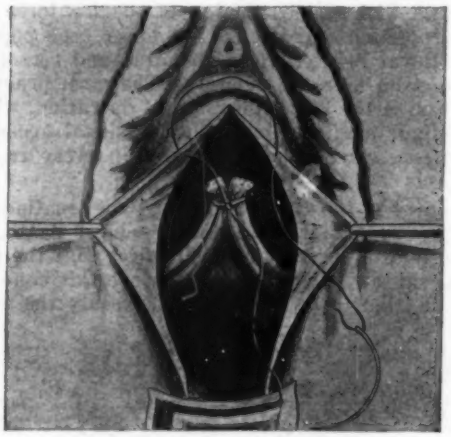

FIGURE XXXVI.

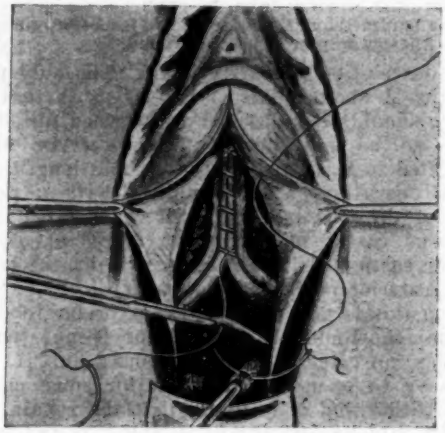

FIGURE XXXVII.

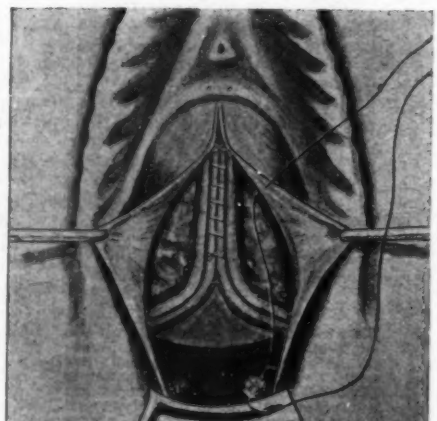

FIGURE XXXVIII.

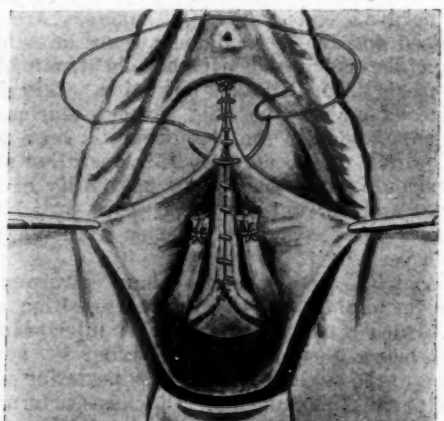

FIGURE XXXIX.

Figures XXXVI, XXXVII, XXXVIII and XXXIX show a modification of the Goffe-Mayo operation. Ligatures are used and the round and utero-sacral ligaments are fixed under the bladder before the incision in the vaginal mucosa is closed. (From drawings lent by Mr. R. Morrison.)

SUMMARY.

Assuming that all members of the College have crossed the *pons asinorum* of gynæcology or, in other words, can perform an efficient union of the *levatores ani*, let us select the best techniques to adopt in the repair of the other disabilities that follow childbirth. As much as I dislike calling operations by surgeons' names, in the present case to do so will assist in summarizing the various techniques which we have mentioned this evening, so I would suggest that as a College we advocate:

A. For retro-displacements:

1. Alexander-Adams or *Laparotomie Alexander*.
2. Gilliam-Bonney (only when number 1 is contraindicated).

B. For *prolapsus uteri*:

1. Donald-Fothergill.
2. Goffe-Mayo (only when the uterus must be removed).

The others let us strive to forget.

Reports of Cases.

GAS GANGRENE TREATED BY INCISION AND ANTITOXIN, WITH RECOVERY.

By C. T. PIPER, M.B., B.S., M.R.C.P.,
Bute, South Australia.

ON January 11, 1934, a man, aged sixty-five years, was thrown from a bolting wagon in a farmyard at about 8 p.m. I saw him about 9.30, when he was sitting against the wall of a stable, on a floor of horse manure, suffering from considerable shock *plus* mild alcoholism. There was a gaping wound, 7·5 centimetres (three inches) long, on the inner side of the right knee with obvious fracture of the condyles of the femur. There was at this time abundant crepitation in the tissues near the upper end of the wound, which was ascribed to surgical emphysema. The wound was filled with iodine and usual first aid treatment was applied. He was then taken to hospital, the wound was again cleaned and filled with iodine, and shock treatment was instituted—this at about 12.30 a.m.

At 10 a.m. on January 12 ether was given, the patient's condition being then good. Many fragments of bone were removed, an opening into the knee joint, three-quarters of an inch long, was excised and sutured. The edges of the wound itself were excised, tetanus antitoxin was given, and constant irrigation with eusol was instituted, the limb being fixed permanently in a Thomas splint. The crepitant area had moved from the upper end of the wound and was now situated 5·0 centimetres (two inches) higher up over the adductor muscles. It was ovoid in shape, about 5·0 by 7·5 centimetres (two by three inches) in area, raised, tympanitic and crepitant, with the discoloration of a bruise. Gas gangrene was considered, but the absence of constitutional symptoms decided us in favour of a waiting policy. The patient's temperature was 36·8° C. (98·2° F.), his pulse rate was 84, and his respiratory rate 24. That evening the temperature and pulse were still normal, the patient felt well, and the gas bubble had not increased beyond the pencil mark with which I delimited it in the morning.

The patient had a comfortable night and next morning felt well, but "shaky". His temperature had risen to 37·9° C. (100·2° F.) and the pulse rate to 118. He was obviously not so well. The thigh was swollen generally over the lower two-thirds when seen at 11 a.m. The nurse remarked that there had been a great increase in size since she dressed the wound at 6 a.m.; also a change for the worse in the patient's condition. A livid swelling had now appeared on the outer side of the knee and was spreading rapidly. It was crepitant and tympanitic. The lividity over the adductors had spread and beyond its margins there was swelling which did not pit on pressure, but was softly crepitant to within 5·0 centimetres (two inches) of Poupart's ligament. Gas gangrene was diagnosed definitely, and amputation was considered, particularly as the agent in Adelaide had telephoned that he could obtain only 20,000 units of antitoxin for me in the whole of the city and that I could not receive it before midnight. I was not able to obtain an anæsthetist until about 4 p.m. Fortunately he was able to supply me with 20,000 units of antitoxin. In view of this and the fact that by this time œdema and crepitation had crossed Poupart's ligament, it was decided that free incision with antitoxin would give the patient a better chance than disarticulation through the hip joint, with its concomitant shock.

Ether was administered and longitudinal incisions were made through the skin and fascia throughout the whole length of the affected areas. Two of these incisions were made over each of the areas of lividity, being placed parallel and about 5·0 centimetres (two inches) apart. The affected tissues were found to be infiltrated with a greyish gelatinous fluid which did not flow freely from the wounds and in which were suspended a moderate number of minute bubbles of gas. The gas present would be in about the proportion in which one sees it in nearly flat soda water. The incisions were deepened into the muscles, which were rather paler than usual and contained a few pockets of gas bubbles; but there was no macroscopic œdema. Peroxide of hydrogen compresses were applied and later the eusol drip was brought into action on these wounds also. Twenty thousand units of antitoxin were given intravenously with the patient anæsthetized. Within an hour there was a severe rigor followed by complete collapse, the pulse being imperceptible, but he rallied after the administration of strychnine and adrenaline.

On the next day the temperature had dropped to normal, but the man was still very ill and the pulse rate rapid (120). The gas and œdema had receded and the wounds had a glazed surface in which the bubbles could still be seen. Ten thousand units of antitoxin were given intramuscularly. On the third day there were few gas bubbles, the wounds were remarkably clean, and the general condition was improved, the pulse rate now averaging 104. A further 5,000 units were given, and on the fourth day the pulse was continuously below one hundred and at times below ninety. Colour, tongue and appetite had improved. No gas was demonstrable, the wounds were clean, with a border of peculiarly golden coagulum. The drip was stopped and peroxide of hydrogen compresses were applied. On the floor of three of the wounds isolated areas of muscular sloughing appeared, of about the size of a threepenny bit.

The original wound was discharging muco-purulent matter with small pieces of bone. He remains febrile at this date (January 31, 1934), but the picture now presented is that of the ordinary septic compound comminuted fracture, and he is no longer under my care, having been transported to a public hospital. The incisions are clean and healing, although the slough on the outer side has gone through the whole thickness of the semimembranosus muscle and left a hole through which the ends of the bone may be seen.

Culture taken from the incisions and incubated on serum under sterile paraffin gave a slight growth at twenty-four hours, with production of gas in the medium, both being profuse within thirty-six hours. The smear showed a rod-shaped bacillus, exhibiting some pleomorphism; a few apparently capsulated forms were probably artefacts; some of the organisms were swollen into large central spores, oval in shape, clear, with deeply staining ends, and about twice the thickness of the parent organism. Gram reaction was indefinite. This fits in with the description of the bacillus of malignant œdema, which corresponds with the clinical findings. The culture was not submitted to a bacteriologist, unfortunately.

Comment.

This case is thought worthy of record for several reasons:

1. The condition is so rare that one is apt to be somewhat sceptical in and tardy of making the correct diagnosis.

2. The condition was complicated by the early onset of the classical sign, followed by a period of latency and then rapid development.

3. The satisfactory result of conservative treatment in a patient of unsatisfactory diathesis; particularly when one considers that an Adelaide surgeon assured me, when consulted on the telephone on the second day, that no treatment would be of any avail.

4. The satisfactory response to antitoxin. The lack of certain identification of the organism leaves one's thoughts in the air as to the reason for this. It had all the attributes of a specific action, but as the antitoxin is to *Bacillus welchii* only, one is left wondering.

5. The difficulty of obtaining suitable supplies of antitoxin. On the fourth day I was able to obtain only 12,000 units from an agency in Adelaide.

6. Practitioners in this neighbourhood to whom I have spoken are not able to recall the occurrence of a similar case. It is possible that there may be more and that the infection may spread in the same way as tetanus has done. In these circumstances the prophylactic treatment of wounds must be extended to include the injection of gas gangrene antitoxin. It would therefore be a con-

venience to us and a boon to our patients if the Commonwealth Serum Laboratories would put up for us a mixed prophylactic serum for common use. This would result in a more general use of the prophylaxis than if two injections were required.

7. There has not been any sign of septic affection of the knee joint, although it was opened by the accident and sutured with great trepidation and in full expectation that it would have to be opened again within a few days.

Post Scriptum.

The patient died three weeks later as a result of chronic sepsis with secondary hæmorrhage.

Reviews.

AN OPHTHALMIC ATLAS.

MR. HUMPHREY NEAME is to be congratulated on having filled a very definite gap in every ophthalmologist's library, by the publication of his "Atlas of External Diseases of the Eye".[1] It is intended to be a companion volume to Ernest Clarke's "Fundus of the Human Eye", which was published in 1931 by the Oxford University Press. Both atlases are excellent for students, general practitioners and physicians, for whom they are primarily intended, but it is a great pity that the authors did not publish more comprehensive works, volumes which could take their place beside Vogt's classical atlas of the slit-lamp. All the drawings in both atlases have been excellently executed by Theodore Hamblin's drawing department, and with such facilities at hand, it appears to us to be incumbent upon one or more London oculists to publish in the near future complete atlases of both external and fundus diseases, for such volumes have for many years been in sore need for teaching purposes throughout the British Empire.

The outstanding feature of Neame's excellent atlas is a brief description of each disease illustrated, together with the treatment indicated facing each illustration. This feature has been substituted for detailed notes of the individual cases, and should prove of great assistance. The work has been divided into four groups: (i) "Eyelids and Lachrymal Apparatus", (ii) "Conjunctiva", (iii) "Cornea and Sclerotic", (iv) "Iris and Ciliary Body". General practitioners would have derived further benefit by illustrations of trichiasis in Group 1, of Koch-Weeks conjunctivitis in Group 2, of glaucoma (its acute stages), gonococcal iritis and episcleritis in Group 3. The neglect of acute glaucoma is a regrettable omission, in view of the fact that delayed treatment of this disease has in the past been responsible for much blindness.

Like Parsons's "Disease of the Eye", this atlas should be in the possession of every general practitioner and of every student of ophthalmology in Australia. It is a standard work which time and opinion will not materially modify.

BODILY HEALTH AND CONSTITUTION.

SINCE the time of Hippocrates, and probably even before that, men have believed that a person's constitution and his health are intimately associated, but until fairly recently the belief has rested chiefly on a basis of vague opinion and not upon that of rigid scientific proof. Professor Raymond Pearl discusses the question in "Constitution and Health", an expansion of a lecture delivered by him in 1933.[2] Professor Pearl draws attention to the difference between the ways in which medical men and biologists regard disease. The former, he says, often tend to think of a disease, such as pneumonia, as "attacking" a patient. The latter, on the other hand, regard the disease as consisting of an alteration of the patient's biology, a disturbance of the equilibrated commensalism between him and a bacterium. The distinction, we agree, is of great importance and well worth the thought of medical practitioners.

Professor Pearl classifies the causes of disease as: (i) chiefly exogenous (for example, infestations), (ii) chiefly endogenous (for example, constitutional peculiarities), and (iii) a mixture of (i) and (ii), often with one or the other predominating. He further classifies organ systems into (*A*) those in direct contact with the external environment, (*B*) those not in contact with the external environment. He shows that in old age diseases of endogenous (constitutional) origin are the commonest causes of death and that they involve chiefly the organ systems listed under (*B*), which include the vital organs. Long-lived persons may therefore be truly said to possess "sound constitutions".

Professor Pearl discusses the difficulties underlying the investigations of his subject, and in passing makes a shrewd thrust at the gene theory of heredity. The book ends with an account of some studies carried out in the author's laboratories on the relationship between bodily habitus and disease. The little book, although only an introduction to its subject, will well repay careful reading.

[1] "Atlas of External Diseases of the Eye", by H. Neame, F.R.C.S.; 1934. London: J. and A. Churchill. Demy 8vo., pp. 110, with illustrations. Price: 15s. net.

[2] "Constitution and Health", by R. Pearl; 1933. London: Kegan, Paul, Trench, Trubner and Company, Limited. Foolscap 8vo., pp. 97, with illustrations. Price: 2s. 6d. net.

Notes on Books, Current Journals and New Appliances.

A MODIFIED PNEUMOTHORAX NEEDLE.

By DAVID B. ROSENTHAL, M.D., M.R.C.P.,
Medical Superintendent, Gresswell Sanatorium, Mont Park, Victoria.

THE instrument illustrated is a pneumothorax needle designed to combine the advantageous features of the Saugman needle and the ordinary lumbar puncture needle. The essential feature of the needle is that the stilette fits snugly into the needle and is supplied with a position pin to allow the stilette to lie in the same position as the needle point, the end of the stilette being bevelled perfectly with that of the needle.

The advantages are:

1. The needle, with stilette in position as for introduction through the chest wall, offers a smooth face to its passage and therefore does not "pick up" tissue on the way. Thus blockage of the needle by a minute fragment of tissue is avoided.

2. The introducing end offers a more solid face to the pleural surface of the lung and tends to push away rather than penetrate the lung. This type of needle may be used more safely in the early stages of development of a pneumothorax, although for the actual induction the Rivière trocar and cannula are preferred by the writer.

The needle is 11·25 centimetres (four and a half inches) long, the shaft being half this length; it is of steel, 18 standard wire gauge, of medium bevel; the needle mount is a fixture. It is made by Messrs. Felton, Grimwade and Duerdins, Limited, of Melbourne.

The Medical Journal of Australia

SATURDAY, DECEMBER 1, 1934.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

MATERNAL MORTALITY.

EVERY citizen in the Commonwealth of Australia who is concerned in any way with the welfare of the people has noted with satisfaction that the Prime Minister, the Right Honourable J. A. Lyons, has declared his intention of facing the problem of maternal mortality in the Commonwealth. That the problem still exists is well known. According to the latest "Official Year Book of the Commonwealth of Australia", 84 women died in Australia during the year 1932 from puerperal septicæmia, and 375 died from other diseases of pregnancy and labour. Puerperal deaths may be divided into two groups, those that are preventible and those that are not preventible. To define preventible deaths may be difficult, for the possibility of preventing obstetric deaths depends not only on the application of the most efficient obstetric methods and on the perfection of the obstetric art, but ultimately on the care of the woman before pregnancy, on her willingness to submit to supervision, and even on the proscription of pregnancy in the presence of certain pathological conditions. We may, however, state that not until preventible deaths are eliminated will an obstetric problem cease to exist. During recent years the subject has been discussed and interest has been awakened in several ways. In 1925 the Melbourne Permanent Committee for Post-Graduate Work offered a prize for an essay dealing with the causes and prevention of maternal morbidity and mortality. The prize was awarded to Dr. E. Sydney Morris. His essay, published in this journal on September 12, 1925, is a masterly treatise in preventive medicine and is not one whit less valuable to the medical profession now than it was nine years ago. A few months after the publication of Dr. Morris's essay the report of the Royal Commission on Health appeared. This commission made its report after taking exhaustive evidence in all States of the Commonwealth. One of the sections of this report, published in this journal on January 16, 1926, was devoted to maternal mortality. The commission, quoting figures from Dr. Morris's essay, drew attention to 691 deaths, among 5,839 women who died in one year between the ages of fifteen and forty-nine years, in what ought to be the normal physiological process of childbirth. The number accounted for approximately one-sixth of the total deaths among married women. The commission found that about one-third of the deaths occurred from sepsis, one-third was due to the toxæmias of pregnancy, and one-third resulted from other complications of childbirth. Among the recommendations of the commission were: (i) the granting of conditional subsidies by the Commonwealth to States in order to provide facilities for attention to women before, during and after childbirth, according to standards approved by the Commonwealth Department of Health; (ii) the amendment of the *Maternity Allowance Act* so that (*inter alia*) the allowance should not be paid unless a medical certificate was produced to the effect that the mother had had prenatal supervision. A third effort was made to deal with this subject in 1930, when, at the invitation of the Commonweatlh Government, Dame Janet M. Campbell, Senior Medical Officer for Maternity and Child Welfare, of the Ministry of Health of England, visited Australia and reported on the mortality and morbidity of Australian mothers and their infants. An extensive summary of Dame Janet Campbell's report will be found in THE MEDICAL JOURNAL OF

AUSTRALIA of February 22, 1930. The chief burden of the report was that the governments of Australia must be prepared to spend more money on maternal and child welfare than they were spending, and that special departments should be created to assume proper responsibility for this branch of public health administration.

After this brief statement of some of the measures already adopted in an attempt to throw light on the problem in Australia, it will be useful to give an outline of an investigation recently completed in New York.[1] After several unsuccessful attempts had been made to collect data on puerperal deaths, the Committee on Public Health Relations (New York) requested Dr. R. W. Lobenstine and Dr. G. W. Kosmak to submit to them plans for the study of the public health aspects of obstetrics as they affected New York. A *questionnaire* was prepared and a subcommittee was appointed to investigate the cause of death in each case and to decide whether the death had been preventible or not. The study was under the direction of Dr. Ransom S. Hooker. This investigation was made possible by the cooperation of the Department of Health. The preventible deaths fell into two groups. In the first group either the medical attendant or the midwife was held to be responsible. In these instances an error either in judgement or in technique had been made. In the second group the patient was held responsible, and in these instances either the patient had failed to obtain medical advice or had failed to cooperate with her attendant by neglecting or refusing to follow his advice. It was recognized that in many cases in the second group the patient was helpless by reason of circumstances which were not of her making or which lay beyond her control. While we are not at the moment concerned with the detailed results of the New York inquiry, it is interesting to note that of 2,041 maternal deaths studied during a three-year period, 1,343 were found to have been preventible. Of these preventible deaths 65% fell into the first group, that is, they were due to lack of medical skill, faulty medical judgement, poor hospital administration or incompetent midwifery. The remaining 35% fell into the second group. The recommendations of the New York committee include, as might be expected, the shouldering by the medical profession of the responsibility for the education of the public in antenatal supervision. The full extent of antenatal supervision is admirably set out in the report, but cannot be further described at present. Emphasis is laid on the need for adequate training of medical practitioners in midwifery and for the provision of post-graduate facilities. Reference is made to the staffing of obstetric hospitals and the proper training of midwives. At the same time little mention is made of what should be done to help the woman who is "the victim of poverty or ignorance", or of the "failure of society to provide proper and effective education, assistance, and care" for her. If the duty of the State in regard to the economic and obstetric needs of women of this type is excepted, all students of the subject will agree with the concluding statement of the New York committee that the responsibility for the reduction of maternal deaths rests with the medical profession.

The investigations into the obstetric problem that have been made in Australia have yielded no definite information as to the number of preventible deaths that occur. Were an investigation made on lines similar to those adopted in New York, doubtless many preventible deaths would be discovered. Such an investigation could be organized without much difficulty, and the results would show in what direction action should be taken. In some of the States at present steps are taken by the health departments to discover the reason for deaths occurring during pregnancy, labour and the puerperium. These investigations might be extended on pre-arranged lines, and there would surely be no unwillingness to the coordination of results by a central authority. Whether this is done or not, the medical profession must recognize its responsibility. The teaching of obstetrics in the Australian medical schools is organized on sound lines, and post-graduate classes are held every year in several of the capital cities. There is therefore no reason to suppose that medical practitioners

[1] "Maternal Mortality in New York City: A Study of all Puerperal Deaths, 1930-1932", by the New York Academy of Medicine Committee on Public Health Relations, directed by R. S. Hooker, M.D., F.A.C.S.; 1933. New York: The Commonwealth Fund; London: Humphrey Milford (Oxford University Press). Royal 8vo., pp. 311.

are ignorant of obstetrical methods. Continual watchfulness, however, is necessary and, as we have pointed out on previous occasions, this is best maintained by the voluntary checking of results, in the way adopted by the Obstetrical Committee of the Queensland Branch of the British Medical Association. Of course, the whole remedy does not lie in the perfection of obstetrical methods used by medical practitioners. But in any attempts to reduce mortality medical practitioners will be vitally concerned: they must be prepared to help, not only by checking their results and trying to improve them, but by making constructive suggestions through their official organizations, should a suitable occasion arise.

Current Comment.

THE PREVENTION OF RICKETS.

COD LIVER OIL is the time-honoured preparation the antirhachitic value of which has been recognized for many years, indeed, long before the existence of accessory food factors was even guessed at. Nor has it been superseded entirely, for the fat content of an infant's diet is perceptibly increased by it, as well as the vitamin *D*. Ease of administration and accuracy of dosage, however, are factors of importance, and these requirements are met readily in the many reliable concentrated preparations now on the market, since 10 drops a day of a standard 250 *D* product will safeguard the average baby from rickets. T. G. Drake, F. T. Tisdall and A. Brown have made inquiry into the relative value of cod liver oil and "Viosterol" and have included in the scope of their research the study of an irradiated milk.[1] Even in sunny Australia clinicians are aware that rickets cannot be considered at all uncommon, particularly in its lesser grades, and under certain seasonal conditions milk that is apparently satisfactory may fail as an antirhachitic.

These authors carried out their work in Toronto during the winter months and used clinical and radiological methods in the study of over 500 infants. The infants were healthy children seen under ordinary home conditions and represented the average type of baby seen in private practice; they were all of white stock, and the majority were of British and northern European descent, and ranged in age from one to eight months. All the infants were divided into several groups, first according to age, month by month, and secondly according to the daily dose of antirhachitic preparation. The doses of the latter were as follows: cod liver oil in doses of one teaspoonful, two teaspoonfuls and three teaspoonfuls daily (the oil used being a high grade Newfoundland oil containing 130 units per teaspoonful); "Viosterol" containing vitamin *D* in quantities of 100, 200, 400 and 800 units; and, lastly, 20 ounces and 40 ounces of vitamin *D* milk daily. There was also opportunity for observing a number of infants who did not receive any vitamin *D* in special form at all. The physical examination included a careful survey of the infants, special note being made of such signs as craniotabes, bossing, flattening of the back of the head, a rosary, enlargement of the wrists, and bowing of the long bones. The wrists were selected as the subject of radiological study in all cases. Both examinations were repeated twice within the space of five months, and during this time the feeding was controlled by attendance at baby clinics and by visits by competent nurses to the homes. In the final assessment of the results the degree of rickets present, as judged by the radiographic findings, was marked as 1–, 1, 2 and 3, corresponding with very slight, mild, moderate and more severe grades of rhachitic change. One interesting conclusion reached by the authors is that they cannot correlate the X ray signs with the clinical findings, and in evaluating their results they place much more reliance upon the evidence seen in the skiagrams. Certain known facts about rickets were taken into account; for instance, a higher proportion of premature infants was noted as showing evidence of rickets, also the comparative rate of growth of the babies was observed, another factor of some importance. But these considerations did not materially alter the results.

In summing up, the authors conclude that the sunshine in Toronto is not very effective in preventing rickets, since 12·8% of 349 babies examined at the beginning of the cold months showed some slight radiological evidence of rickets; they also found that the infants most likely to show signs of bony changes were those under four months. As regards the babies treated with cod liver oil, it was found that three out of a total of 137 showed moderate or considerable rhachitis; it is suggested that some difficulties in securing regular dosage of the oil under home conditions might affect these figures; but no evidence was adduced that there is any advantage in giving a dose of cod liver oil greater than one teaspoonful. The infants treated with "Viosterol" did very well, and all doses of the preparation used were quite ample to secure adequate protection to the children. Similarly good results were obtained from the use of the irradiated milk, for no cases of rickets except some of the mildest grade were observed during the test period. The most important results that emerge from this inquiry are as follows: Cod liver oil is not quite so reliable an antirhachitic as either "Viosterol" or irradiated milk, probably due to difficulties in securing regular and adequate dosage. Irradiated milk is therefore a valuable addition to the armamentarium of the pædiatrician. Finally, clinical evidence alone is unreliable in the accurate diagnosis of rickets.

[1] *The Canadian Medical Association Journal*, October, 1934.

Abstracts from Current Medical Literature.

MEDICINE.

Disability in Pulmonary Fibrosis.

WILLIAM S. McCANN *et alii* (*The Journal of the American Medical Association*, September 15, 1934) have endeavoured to estimate the degree of physiological incapacity in pulmonary fibrosis. The function of respiration is mediated by the heart, the blood and the lungs, so that it was found necessary to obtain complete details of each factor in any one instance. The investigations include: estimation of the pulmonary capacity and its subdivisions, with the tidal air, dead space, alveolar gases and response of the pulmonary ventilation to exercise; usual diagnostic Röntgenographic studies, together with the measurements of areas of the pulmonary fields during maximum inspiration and expiration, with observations as to the behaviour of the ribs and diaphragm; full blood count, cell and plasma volume and gas content, particularly of the degree of saturation of the arterial blood with oxygen; Röntgenological examination of the heart, electrocardiograms and the cardiac output. The enormous amount of data thus procured is not completely presented in the article, but will be published elsewhere later. Fifty-three cases of pulmonary fibrosis of varying ætiology were studied and grouped according to the anatomical type of fibrosis revealed in Röntgenograms of the chest. A decrease in the total and vital pulmonary capacities and an increase in the residual air are characteristic changes, tending to become more accentuated as the fibrosis increases, but there are exceptions. The ratio of residual air to total pulmonary capacity and its bearing on anoxæmia are also of great importance. The Sturgis-Peabody formula for predicting maximal ventilatory capacity from the vital capacity is shown to be roughly correct, but it is stated that further work seems necessary to devise a better formula. Patients with pulmonary fibrosis attain maximal ventilation with less acceleration in rate of breathing than occurs in normal subjects or patients with heart disease or emphysema. The authors state that they are continuing their observations in the belief that a higher correlation between vital and ventilatory capacity will be attained if the effective alveolar ventilation is measured.

Helminth Infestation.

D. MANSON (*The Indian Medical Gazette*, September, 1934) records the results of treatment of hookworm, whipworm and roundworm infestation by means of tetrachlorethylene. He points out that previous workers, including Maplestone, Chopra and Mukerji, have discussed the use of this drug as an anthelmintic; Maplestone and Mukerji have expressed the opinion that the drug is safer than, and at least as efficient as, carbon tetrachloride. The author points out that carbon tetrachloride, in spite of all precautions, sometimes produces untoward symptoms; it is especially apt to cause toxic symptoms in severe roundworm infestation; also its administration to alcoholic subjects seems to be dangerous. The author administered tetrachlorethylene in doses of three cubic centimetres and four cubic centimetres, oil of chenopodium in ordinary therapeutic doses, and a mixture of oil of chenopodium (one cubic centimetre) with tetrachlorethylene (three cubic centimetres), to adults suffering from helminth infestation. Proportionately smaller doses were given to the few children in the series. The results of the various types of treatment were compared, egg counts being taken as a guide to the therapeutic effects. Tetrachlorethylene caused giddiness, a slight tendency to sweating, and a general feeling of *bien être*. "In fact, the symptoms were those of a mild, but not unpleasant, degree of intoxication." In a few cases there was nausea, in very few there was actual vomiting, and occasionally there was a complaint of burning in the throat after the liquid had been swallowed. The patients preferred tetrachlorethylene to oil of chenopodium, evidently regarding the slight intoxication as a merit rather than a detraction. Several hardened topers returned at the end of a week and asked for a second helping. In no case was there any adverse symptom. The administration of tetrachlorethylene in a dose of four cubic centimetres and the mixture of tetrachlorethylene proved the most efficient treatment in mixed helminth infestation and in hookworm infestation; oil of chenopodium in a dose of three cubic centimetres was the more efficient drug in the treatment of ascariasis. The author concludes that "tetrachlorethylene is a safe and reliable anthelmintic for general use, when properly administered", and he goes on to say that the partiality of the coolie to the drug is "an important feature in recommending its use on tea estates".

Malaria.

JAMES A. BRADLEY (*The Journal of Tropical Medicine and Hygiene*, August 15, 1934) discusses the occurrence of malaria among drug addicts in New Orleans, United States of America. In November and December, 1932, six adult male drug addicts died of malaria in the Charity Hospital of Louisiana, New Orleans. Prior to this period only two cases of malaria associated with drug addiction appeared in the records of the hospital. During eleven months ending September 30, 1933, fifty drug addicts suffering from malaria were admitted. The period of the greatest number of admissions was from April, 1933, to June, 1933. There were two peak periods: the first in November, 1932, the second in May, 1933. The first peak followed the desertion from hospital of a drug addict suffering from malaria. The author believes that this patient transmitted malaria to other addicts by allowing them to use a needle for injecting a drug immediately after he had used it himself. He points out that drug addicts sometimes purchase a given quantity of a drug, charge a syringe, and divide the contents. The second peak followed the introduction of more stringent police measures aimed at the suppression of the drug traffic. It is unlawful for an unqualified person to have a hypodermic syringe in his possession. About March 1, 1933, the police began interpreting this clause of the Act as referring to medicine droppers and hypodermic needles. Frequently drug addicts use a medicine dropper fitted with a hypodermic needle. Owing to police activities it became unsafe for an addict to carry this outfit; a syringe was therefore kept at some centre where the use of it could be obtained as required. The location of the syringe was changed frequently. The author states that intravenous injection is employed and that the addict draws blood back into the syringe as evidence that the point of the needle is in the vein. The custom of dividing doses in such circumstances is favourable to the transmission of malaria. The author suggests further that the virulence of the organism might be enhanced by passage. Another way in which malaria might be acquired is by a customer's using a contaminated syringe, kept at the depôt in contaminated water. A few minutes' immersion in water would not be likely to kill the parasites. Anopheles mosquitoes are prevalent in places where malaria does not occur; as some drug addicts travel widely, a new way is opened for the introduction of malaria into these places.

Hypertension.

L. LANGERON, G. VINCENT AND DESORCHER (*La Presse Médicale*, June 27, 1934) discuss surgical treatment in certain forms of arterial hypertension. First, it was observed that suprarenalectomy did not materially alter arterial tension in normal subjects. Secondly, out of seven patients in whom left suprarenalectomy was performed, with removal of an apparently normal gland, a fall of tension was observed in four, and paroxysmal hypertension ceased in two, though the hypertension became permanent in one of these. Thirdly, removal of suprarenal tumours from three patients was followed by disappearance of paroxysmal and permanent hypertension. Fourthly, section of the splanchnic nerves caused cessation of paroxysmal or persistent hypertension in four out of six patients. These results were collected from the literature, the reports were in some cases scanty, and the per-

manence of the results was uncertain. There were four deaths in this series within a day or two of operation, and in these subjects grossly enlarged hearts and renal complications were noted. The difficulty of excluding such complications and of diagnosing suprarenal tumours is emphasized. The authors conclude that there is a field for surgical intervention in hypertension, especially the paroxysmal variety, provided that all other methods have failed and that full investigation indicates a reasonable possibility of success.

Calcium and Prosphorus Metabolism in Osteomalacia.

IN order to determine the duration of the effect of vitamin *D* on the calcium and phosphorus metabolism in osteomalacia, R. R. Hannon *et alii* (*Chinese Medical Journal*, July, 1934) carried out investigations on the metabolism for thirty-four periods of four days each in a case of relatively early osteomalacia in which no vitamin *D* therapy had been given prior to the studies. Observations were carried out over a period of six months and details of diet and biochemical results, together with clinical and Röntgenological notes, are given. The conclusion is that in these patients the essential metabolic abnormality is a lack of absorption of calcium through the intestinal tract, there being no increase in endogenous calcium excretion. The absence of calcium from the urine in the presence of approximately normal serum calcium level is taken as evidence of conservation of endogenous calcium elimination. Vitamin *D* in the form of "Vigantol" (a preparation containing irradiated ergosterol dissolved in oil) was administered in small dosage for a limited period, but remarkably increased calcium absorption and decreased endogenous calcium elimination occurred, thus resulting in striking calcium and phosphorus retention and deposition in the bones. The beneficial action of vitamin *D* was sustained for at least four months after its administration was discontinued.

Angina Pectoris.

S. DIETRICH AND H. SCHWIEGK (*Deutsche Medizinische Wochenschrift*, June 29, 1934) discuss the pathogenesis and treatment of *angina pectoris*. They quote Rein as having coined the term "coronary insufficiency" to express the essential condition of this angina—a condition in which the coronary circulation is not adequate to the work required of the heart muscle. As a result of the inadequate circulation the heart receives an inadequate supply of oxygen. Experiments on animals and electrocardiographic observations are quoted as confirming the theory that "anoxia" of the heart muscle is the cause of the symptoms, which are slight or severe according to the degree of the anoxia. The object of treatment must be to adjust the disproportion between oxygen supply and heart muscle work by increasing the arterial blood supply and by lessening the demands on the heart muscle. For dilating coronary vessels that are not too sclerosed to respond, nitrites are mentioned first. Glucose, given intravenously, has been found in animal experiment to have the same effect; also certain hormone preparations. To lessen the heart work, rest, bodily and mental, is imperative. Especially should all activities which might reflexly excite contraction of the coronary vessels be excluded. The authors find benefit from oxygen administration and, conversely, give a warning of the danger to anginal patients of high altitudes, and especially of aeroplane journeys, unless provision be made for oxygen inhalation if it should become necessary. With suitable exercises much may be done to improve the circulation in the heart muscle and to render it less susceptible to changes in its oxygen supply. Buchner is quoted as stating that anginal pain is a warning signal and that the anoxia of the heart muscle must not be further increased by bodily exertion.

Chronic Rheumatism.

J. CONTURAT (*La Presse Médicale*, July 18, 1934) discusses the use of sulphur in chronic rheumatism. Sulphur is greatly diminished in the cartilage of the aged and of sufferers from crippling rheumatism. This lack of sulphur affects the mobility and the resistance of the cartilage. Treatment with sulphur, by injection, was found effective in relieving pain and disablement due to chronic articular rheumatism. The preparation used contained sulphur (0·50 gramme), camphor (5·0 grammes), and oil (100 grammes). Three series of ten injections were given into the muscles of the thigh, one every second day. Pain and fever frequently followed the injections, which, however, in many cases gave remarkably satisfactory results that were not attributed to the fever alone.

Congenital Cystic Disease of the Lungs.

HARRY G. WOOD (*The Journal of the American Medical Association*, September 15, 1934) discusses the findings at the Mayo Clinic in sixteen cases of congenital cystic disease of the lungs. The ætiological factors are unknown, but the congenital origin is practically settled, for in many cases the lesions are palpably present at birth and, more important still, in specimens obtained in later life pigment is almost invariably absent. According to histopathological studies, two groups can be identified: single or multiple large cysts containing air or fluid, and a diffuse degeneration resulting in a honeycomb type of lung. In giving the clinical data the author has grouped the cases according as the diagnosis is incontrovertible (six cases), the diagnosis depends on the radiological findings (six cases), and a group of four cases in which the diagnosis may be disputed. Clinical examination reveals that a unilateral distribution is more frequent than bilateral, but the view is expressed that if all cases were autopsied a greater percentage of bilateral lesions would be demonstrable. There is no characteristic syndrome, the various symptoms depending on the site of the cyst and pressure on adjacent structures. A cyst may have a valve-like opening into a bronchus and thus dyspnœic attacks may result. In the differential diagnosis thoracic tumour, pulmonary abscess, empyema, dermoid cyst and hydatid cyst must be considered. These conditions are discussed by the author. Secondary infection is the greatest potential danger to which these patients are subject. Complete extirpation of the fluid-containing cysts has given excellent results in a number of cases. Bronchoscopic aspiration followed by injection of iodized poppy-seed oil is indicated where a bronchial communication exists and the cavity is secondarily infected. Diffuse bilateral cystic degeneration is not benefited by any form of treatment.

Tubercle Bacilli in Sputum in the Absence of Evidence of Pulmonary Tuberculosis.

FERNAND BEZANÇON, PAUL BRAUN AND ANDRI MEYER (*La Presse Médicale*, May 9, 1934) relate the finding of tubercle bacilli in the sputum of twenty-one patients in whom there was an entire absence of physical signs or radiological evidence of pulmonary tuberculosis. They took every precaution to avoid any error of technique in the sputum examination, and in most cases either cultivated the bacillus, which was invariably human, or injected a guinea-pig, with its resultant death from tuberculosis. They had the radiological findings checked by several observers, taking films in several planes, and in no case could a film be reported as being other than normal. The patients were suffering either from an acute respiratory affection of influenzal type or from chronic bronchitis, and all either recovered completely and rapidly from their illness or lost the tubercle bacilli from their sputum. They postulate, therefore, a very discrete and benign type of pulmonary tuberculosis, wherein the lesion is situated probably in close relationship to the wall of a bronchus. This is akin to the type wherein hæmoptysis or pleurisy occurs, with temporarily bacilliferous sputum, but no other evidence of the cause thereof. They admit that the recognition of such a type, compatible with a life of full working efficiency, raises some delicate problems, such as the possibility of contagion, the granting of pensions and the like. They plead, therefore, for further prolonged studies to decide how to deal with persons who have tubercle bacilli in their sputum without any apparent lesion.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Alfred Hospital, Melbourne, on September 19, 1934. The meeting took the form of a series of demonstrations by the members of the honorary staff.

Unilateral Œdema of the Arm.

DR. EWEN T. DOWNIE and DR. A. R. BUCHANAN showed two patients who were suffering from unilateral œdema of the arm.

The first patient was a woman, aged fifty-nine years, who had complained of swelling of the right arm for two years. The onset was gradual and it was associated with some gnawing pain in the upper part of the arm, together with burning sensations in the arm, but no definite paræsthesia. The previous history was normal, except that she had lived at Mount Morgan, Queensland, for some years, eighteen years ago.

Examination revealed the presence of chorioido-retinitis in the left *fundus oculi*, the right being normal. The heart was enlarged, the apex beat being situated in the fifth intercostal space, ten centimetres (four inches) from the mid-line; the cardiac sounds showed no abnormality. The systolic blood pressure was 180 millimetres of mercury and the diastolic pressure 100 millimetres; it was the same in both arms. Examination of the lungs and abdomen revealed no abnormality.

The right arm was much enlarged, particularly the forearm, the swelling appearing to cease at the level of the wrist and extending to just above the elbow, when it shaded off into normal tissue. The swelling was uniform and pitted slightly on firm pressure. The upper part of the arm, breast, axilla and supraclavicular areas showed no abnormality. No enlarged veins were apparent, and there was no colour change in the limb.

The Wassermann test yielded no reaction; renal function tests gave normal results. X ray examination of the chest and cervical spine revealed no abnormality.

Since this patient came under observation there has been no change in the condition. Treatment with iodides, thyreoid extract, digitalis and physiotherapy had had no effect.

The second patient was a male, aged sixty-three years, who had complained of swelling of the left arm for two years. The onset was gradual, and followed the appearance of a ganglion on the back of the left hand. He had been under treatment for osteoarthritis for some time previous to the appearance of the swelling; apart from this the previous history was normal.

Examination revealed some enlargement of the heart, the apex beat being situated in the fifth intercostal space, 9·5 centimetres (three and three-quarter inches) from the mid-line; the cardiac sounds were normal. The systolic blood pressure was 150 millimetres of mercury and the diastolic pressure 100 millimetres; it was the same in both arms. Examination of the chest and abdomen revealed no abnormality.

The left arm was enlarged, the enlargement being almost entirely limited to the forearm, and mainly to the flexor surface thereof. The swelling varied from time to time, but never disappeared; it appeared to be worse after exercise involving pronation and supination of the forearm. The swelling was uniform and pitted slightly on very firm pressure, the pitting remaining for a long time after pressure was released. The upper part of the arm, axilla, shoulder and supraclavicular area showed no abnormality. No enlarged veins were apparent, and there was no colour change in the limb.

The Wassermann test yielded no reaction; renal function tests gave normal results. X ray examination of the chest, cervical spine, and bones of the arm revealed no abnormality.

Treatment by physiotherapy, elastic pressure, iodides *et cetera* had had no effect on the condition.

These cases excited much interest, but no suggestions as to ætiology or treatment were put forward.

Hypersensitiveness to Pollens.

DR. CHARLES SUTHERLAND showed three patients illustrating hypersensitiveness to pollens.

The first, Mrs. M.M., aged twenty-four years, had had hay fever for fifteen years each year from September to February; the condition was so severe as to incapacitate her completely for some weeks each year. Tests revealed extreme sensitiveness to many grass pollens. She also reacted strongly to an extract of the round worm, *Ascaris lumbricoides*. Since desensitization with pollens two years ago attacks had been very much milder. Pre-seasonal treatment had been continued each year.

The next patient, W.S.H., aged eleven years, had had hay fever each spring for eight years. Tests revealed sensitiveness to grass pollens and also a mild reaction to egg white. He had always had to avoid eating eggs. Since desensitization in 1932 he had been free of symptoms, but pre-seasonal treatment was also given in 1933 and 1934.

The third patient, S.S., aged forty years, had suffered from asthma and hay fever from September to January in each year for twelve years. She was quite free of symptoms during the winter. Tests revealed sensitiveness to grass pollens and a small reaction to cow's milk, and she had been almost free of attacks since desensitization.

MISS SHARWOOD showed graphs indicating the variations in the quantity of pollens in the air of Melbourne throughout the spring and summer. These showed definite variations due to season, wind direction and rainfall.

Arthritis of the Hip Joint.

DR. H. C. COLVILLE showed two patients exhibiting unusual forms of arthritis of the hip joint.

The first was a boy, aged fifteen years, who had first come under treatment nine years previously, at the age of seven, on account of pain and slight limp referable to the right hip joint. Clinical and radiological findings at this time suggested the presence of a mild form of Perthes's disease. This diagnosis appeared to be confirmed by the subsequent course, as during the next seven years the child suffered very slight disability, and periodical X ray examination revealed a gradual increase of flattening of the upper femoral epiphysis and broadening of the femoral neck. Then, in 1932, the condition commenced to get worse and there was a definite increase of pain, limp, muscle spasm and wasting, and X ray examination showed commencing destructive arthritis of the joint. The condition was now obviously one of infective arthritis of the hip joint, probably tuberculous. The problem was presented as to whether this was a case of tuberculous involvement of a joint which was the site of a long-standing osteochondritis or whether the condition had been tuberculous throughout.

The second patient was a girl, aged fourteen years, who had been severely injured in a motor car accident on June 11, 1933. She had sustained multiple fractures of the pelvis, one of which involved the acetabular floor of the left hip joint. There was also an extraperitoneal rupture of the anterior wall of the bladder, resulting in extravasation of urine into the cellular tissues of the pelvis. Immediate suprapubic cystotomy had been performed and the tear in the bladder wall was repaired, but in spite of this an intense pelvic cellulitis developed, with the *Bacillus coli communis* as the predominating organism. A few weeks later signs of acute arthritis of the left hip developed and aspiration of the joint yielded turbid fluid, which grew the *Bacillus coli* on culture, the infection having evidently spread from the pelvic cellulitis through the fracture in the acetabulum. The arthritis had pursued a fulminating course, with rapid destruction of the upper epiphysis of the femur, subluxation of the hip joint, and eventually an extraarticular abscess, which pointed and

was opened in Scarpa's triangle. The patient had made a good recovery, but the hip joint became completely ankylosed with great shortening of the affected limb.

Congenital Absence of Vagina and Uterus.

DR. ROBERT FOWLER first presented two cases of congenital absence of the vagina and uterus. Both patients were mature adults with well-developed female instincts. One patient had not had any treatment, whereas the other had been subjected to a succcessful Baldwin's operation two months previously.

Perineal Hernia.

Dr. Fowler also showed an elderly lady who had been subjected to several perineal operations for the cure of a large perineal hernia, which was the size of a fœtal head at term. The hernia originally consisted of two components, namely, a large enterocele with a well-developed peritoneal sac splitting the recto-vaginal septum from above downwards, and, secondly, a rectocele. The enterocele had been successfully obliterated at the first vaginal plastic operation, but the perineorrhaphy, upon which depended the cure of the rectocele, had "broken down", probably owing to the fact that the patient was a diabetic. When the sloughs separated the patient was left with a large perineo-anal fistula, which Dr. Cato had ultimately succeeded in closing. Two dozen lantern slides were exhibited to clarify the various points raised.

Endocrine Dysfunction.

DR. H. G. FURNELL, in order to demonstrate the results of treatment, showed four patients who were suffering from endocrine dysfunction.

The first patient was a married woman, aged twenty-two years. Her weight was 108 kilograms (seventeen stone two pounds). She had suffered from secondary amenorrhœa for four years.

Preliminary investigation revealed a normal pelvis, normal visual fields, and a normal *sella turcica*. Four estimations of the basal metabolic rate showed that it was from +5% to +1%. The urine contained no albumin or sugar. She was treated by injection of œstrin-prolan urine obtained from pregnant women, five cubic centimetres being given every three weeks. This preparation and the prolan urine mentioned later were prepared in the Baker Institute. In addition, she had four stimulating doses of X rays to the pituitary region. Dietetic restriction failed to reduce her weight, and her fluid intake, when tested, was greatly in excess of her output. Finally, twelve injections of "Progynon" were given, in addition to œstrin-prolan urine. Eight days after the last injection she had a menstrual period lasting five days, and each month since had menstruated normally, making three periods in all.

The second patient was eighteen years of age. She had suffered for eight months from secondary amenorrhœa. The usual preliminary investigation revealed no abnormality. She had a course of fifteen injections of œstrin-prolan and four doses of X rays to the pituitary region. Menstruation commenced eleven months ago and had continued regularly since. She has had no treatment for four months.

The third patient was twenty-eight years of age. She had been married for two years; no pregnancy had occurred. She was seen in November, 1933, when her periods were becoming more scanty and were lasting about one day. Preliminary investigation revealed no abnormality. She was given the same treatment as the first patient. Her periods increased in amount each month till June, 1934. At the time of the meeting she was about four months pregnant.

The fourth patient, aged nineteen years, was suffering from menorrhagia. She was first seen on May 30, 1934. She was very exsanguinated and unable to continue at work. Examination of the pelvis revealed no abnormality and further investigation was postponed on account of her condition. Treatment by biweekly injections of twenty cubic centimetres of prolan urine was instituted and she was given iron by mouth. Her next period was much less severe and improvement was rapid. A blood count in July, when her condition had improved very considerably, revealed the presence of 3,110,000 erythrocytes per cubic millimetre, hæmoglobin value of 62% and a colour index of 1·0. Her monthly period was now normal and she felt very well. She had had no treatment for six weeks.

Dr. Furnell pointed out that this patient was typical of a number of girls and young women with excessive menstruation in whom the results of treatment had been almost uniformly excellent.

Coronary Infarction.

DR. IAN G. MCLEAN presented three patients illustrating various types of coronary infarction, with recovery.

The first patient was a male, aged sixty years, who was first seen in March, 1932, with digestive symptoms which were radiologically proved to be due to duodenal ulcer. Six months later he had an attack of severe epigastric pain and presented a clinical appearance of perforated ulcer. There were certain anomalous signs, and an electrocardiograph gave a curve typical of coronary infarction. Two days later a pericardial rub developed, and he had a leucocytosis of up to 20,000 per cubic millimetre. He recovered from the acute condition and at present was fairly well but was liable to anginal pain on exertion. Electrocardiograms still showed abnormalities of the *T* waves.

The second patient was a male, aged fifty-five years, who was first seen in October, 1933, with a history of sudden substernal pain two weeks before, lasting three hours, associated with restlessness and dyspnœa; since then the pain had recurred with exertion. On examination there was outward displacement of the apex beat of the heart, with gallop rhythm and *pulsus alternans*. An electrocardiogram showed changes typical of coronary infarction. Two weeks later he developed signs indicative of pulmonary embolus and with it was associated congestive failure. He eventually recovered and was now in good health and could undertake moderate exertion without distress. His electrocardiogram still showed an abnormality in the *R-T* interval.

The third patient was a male, aged forty-seven years, who was first seen in June, 1933, having had for the previous twelve days attacks of pain in the substernal region and beneath the left costal margin. His history was not typical of coronary infarction, but all investigations revealed no abnormality, except the electrocardiogram, which showed a coronary type of *T* wave in Leads II and III. He had been very well since and could undertake any degree of physical exertion, but his electrocardiogram still showed marked inversion of *T* II and *T* III.

Tetany Following Thyreoidectomy.

DR. C. J. O. BROWN showed a woman, aged forty-eight years, who was admitted to hospital on April 18, 1933. She was subjected to thyreoidectomy for moderately severe thyreotoxicosis. No parathyreoid tissue could be found in the gland that was removed. Tetany occurred on the fourth day after operation and was immediately controlled by intravenous injections of calcium chloride and later by injections of parathormone. When the patient was discharged from hospital on June 13, 1933, it was found necessary to give one cubic centimetre of parathormone three times a week and later twice a week. If the patient missed an injection she invariably had an attack of tetany, which was controlled by an intravenous injection of calcium chloride, but not immediately by parathormone. The patient was also given calcium chloride and cod liver oil and, later on, 0·06 gramme (one grain) of thyreoid extract every day.

Dr. Brown gave details of the subsequent history of the patient. In August, 1934, she had an attack of tetany that was controlled by an intramuscular injection of calcium gluconate and parathormone. Subsequently she was allowed to continue taking calcium lactate and cod liver oil. On August 29, 1934, her serum calcium was 5·9 milligrammes *per centum*.

Crush Fracture of the Os Calcis.

Dr. Brown also showed a woman, aged forty-five years, who had sustained a crush fracture of the *os calcis*. The patient was treated by transfixion with Kirschner's wire and screw traction. The *os calcis* was moulded and finally plaster was applied, the wire being left in place for fourteen days. After the patient had been in bed for a month the plaster was changed and the patient was fitted with a Böhler's walking stirrup, which she wore for six months. Satisfactory union in good position occurred.

Lacerated Wound of the Forearm.

Dr. Brown also showed a young man, aged seventeen years, who, on December 15, 1933, sustained a lacerated wound of the extensor supinator group of muscles in the left forearm, with an oblique fracture in the proximal third of the radius. The dorsal interosseous nerve was not found at operation. The wound was cleaned and sutured and healed by first intention.

On July 5, 1934, no power of extension of the fingers, thumb or wrist was present.

On July 30, 1934, operation was performed. (i) The *pronator radii teres* was transplanted into the *extensor carpi radialis longior* and *brevior*. (ii) The *flexor carpi radialis* was transplanted into the *extensor ossis metacarpi pollicis* and *extensor pollicis brevis*. (iii) The *flexor carpi ulnaris* was transplanted into the *extensor digiti quinti*, *extensor digitorum communis*, *extensor indicis proprius* and *extensor pollicis longus*.

The after-treatment consisted in rest in plaster in dorsiflexion for four weeks and then reeducation.

Skull Changes in Neurological Conditions.

DR. LEONARD COX showed several patients illustrating the changes in the bones of the skull which might be encountered in neurological medicine.

Acromegaly.

The first patient was an acromegalic, a male, aged forty-two years, married. A photograph taken eight years previously showed early signs of acromegaly; the condition had rapidly advanced in the meantime. Dr. Cox said that at present the features and contours of the skull and body more closely resembled those of a prehistoric man than of a modern man. The patient's main disability until a few months ago was his personal appearance and some clumsiness due to the general broadening of his hands. He was still following his occupation as a French polisher and furniture restorer.

About nine months ago he began to complain of headaches in the front of the eyes and in the back of the neck; these were present only when he was lying in bed; once he had dressed himself he was relieved. For the last seven to eight months he had been very sleepy, particularly after meals; he would drowse at his work, and a tool might drop from his hand. He was sexually potent and had one child three years of age.

The general physical and neurological examination revealed no gross abnormality. The visual fields showed no defect. His systolic blood pressure was 110 millimetres of mercury. His urine contained neither albumin nor sugar. He passed slightly above the average quantity, averaging 1,800 cubic centimetres (sixty ounces) over eight consecutive days. After taking 50 grammes of glucose he showed a normal blood sugar curve and no sugar appeared in the urine. The serum calcium content was slightly below normal, being on two occasions 8·3 milligrammes and 8·9 milligrammes *per centum* respectively.

The skiagram of the skull showed a large distended *sella turcica*, presumably containing a large chromophile adenoma. The film was shown, as were skiagrams of the other bones showing the changes usual in acromegaly.

The second patient was an acromegalic, a female, married, and aged thirty-three years. Six years ago the patient suffered from severe headaches at the back and top of the head and into the eyes, which lasted for two weeks. At this time she developed a psychosis, becoming depressed and anxious. She recovered and was well for six months; then the headaches and depression recurred. She then came to Melbourne and underwent extensive investigations by members of the various branches of the medical profession.

Two and a half years ago she became affected by "giddiness", a sensation of falling to the left. Otherwise her condition had improved. As her depression was aggravated at the times of menstruation, an artificial menopause had been induced with radium. She was no better after this, the pressure in her head being so severe that she would sit in a high chair, feeling that she was being pressed through the floor.

She had abandoned the medical profession at this stage for a chiro-practitioner, and stated that her headaches were much improved as a result. She had, however, been growing worse since, and was experiencing sensations of rocking and a feeling of movement and instability. She was still subject to headaches. She felt that she was sinking through the bed and therefore clung tightly to her husband. She also had a queer illusion of distance; although she knew the correct distance of objects, she felt, on looking at them, that they were a much greater distance away. She had not menstruated regularly since the artificial menopause, the last period occurring one year ago.

She had one child, aged seven years. The changes in size of the hands and feet were first noticed four years ago. Her usual shoe size had been four; now it was a broad six.

On examination the patient presented features common to acromegaly of a moderate grade. Her general systemic and neurological examination revealed no gross abnormality. The systolic blood pressure was 130 millimetres of mercury. The urine contained neither albumin nor sugar. The optic disks were normal in appearance and the fields full. The blood sugar curve was normal and no sugar appeared in the urine during the test. There was no polyuria, the daily output averaging 1,350 cubic centimetres (forty-five ounces). The serum calcium was a high normal, being 11·0 milligrammes *per centum*.

The skiagrams were of interest. That taken four years ago showed a large pituitary fossa, which at that time was thought to be normal. It had since enlarged considerably. General X ray examination revealed the changes common to acromegaly. The patient was undergoing deep X ray therapy.

The third patient was an acromegalic, a female, aged fifty-three years, single. A photograph showed that as a young woman she was small featured and of an unusually bright and attractive type. Now she showed the changes of advanced acromegaly.

The onset of her illness occurred twelve years ago, with an acute mental breakdown. She was extremely violent and was committed to a mental hospital for some time. She recovered from this, but had not been in good health since. She had had very little headache, although in 1930 for two weeks she suffered from severe headaches. Her visual fields were full and the fundi normal. Her systolic blood pressure varied from 120 to 140 millimetres of mercury. Her urine contained neither albumin nor sugar. Her blood sugar curve was normal and no sugar appeared in the urine.

Her skiagrams were of great interest. She had a large pituitary fossa with some calcification of the interior; the appearance had not changed much during the last four years. The bones showed the usual alterations common to acromegaly, with many osseous spurs. Dr. Cox said that in acromegaly, however, it was generally considered that calcium retention occurred. This was not so in this case. Practically all the bones were abnormally thinned, showing a definite loss of calcium. Dr. Cox remarked that he did not think that any acromegalic had as yet been reported with this condition, although it frequently occurred in the recently described basophile adenoma of the pituitary gland. He said that it was known that in hyperparathyreoidism there might be considerable decalcification of the bones; in acromegaly certain of the ductless glands, as the thyreoid, suprarenal cortex, and parathyreoid glands, had been found at autopsy to be enlarged; an actual adenomatous condition of these glands

had been observed, and parathyreoid adenomata had been described. It might be, therefore, that the decalcification in this case was associated with parathyreoid hyperactivity. The serum calcium was normal, being 10·6 milligrammes *per centum*. However, even in parathyreoid tumours, as might occur in *osteitis fibrosa cystica*, the serum calcium, although at times markedly increased, might be within normal limits.

Chromophobe Adenoma of the Pituitary.

The fourth patient suffered from chromophobe adenoma of the pituitary. He was a male, aged thirty-two years, single, who was first seen on April 25, 1934. His vision had commenced to fail three months before. The right eye was first affected, and about six weeks later the vision of the left eye also. He showed at this stage visual perception of light in the right eye if it were directed to the temporal half of the retina; the left eye showed a visual acuity of $^6/_{12}$. A definite left homonymous hemianopia was present. The disks were normal in appearance.

Other general symptoms were described: (i) He had observed a definite polyuria some months previously, from which he had recovered. (ii) He had lost all sexual desire for several years.

He was a pale, well nourished man showing no obvious signs of hypopituitarism. His general physique was moderately good; general and neurological examinations revealed no gross abnormality. The systolic blood pressure was 115 millimetres of mercury. His urine contained neither albumin nor sugar. X ray examination revealed a marked enlargement of the pituitary fossa.

The patient had been operated on by Dr. H. Trumble by the frontal route and the major part of a pituitary adenoma had been removed. Section showed it to be of the common chromophobe type. The patient left hospital in fourteen days' time. In three weeks no abnormality could be found in his fields, his vision in each eye being $^6/_6$. Since then his condition had continued to improve. He had had a course of deep X ray therapy.

Xanthomatosis of the Skull.

The fifth patient was suffering from xanthomatosis of the skull (Schüller-Christian syndrome in part). He was a male, aged twenty years, single. His only complaint was the deformity of his head. The right fronto-temporal region was grossly enlarged and the orbit was pushed downwards. Two years ago he took 7¼ size in hats; today he requires a 7¾ hat. The condition could easily be identified in a photograph taken at the age of six. Prior to that date the condition was uncertain but probably present.

The skiagram showed an enormous thickening of the bones of the right side of the skull. The frontal bone was of enormous width, the right frontal sinus being replaced by radio-opaque tissue.

General and neurological examinations revealed no abnormality. As the diagnosis was uncertain, it had been thought wise to remove a portion of the bone. It was considered possible that a meningioma might have invaded the bones of the skull, as occurred at times. Dr. H. Trumble had accordingly removed a portion. Section showed a condition of xanthomatosis, a condition in which the bone contained large masses of histiocyte-like cells containing cholesterol. This condition might invade bones other than the skull; in this patient it was confined to the right half of the skull.

Dr. Cox said that this was a variant of the rare condition known as the Schüller-Christian syndrome. In this condition collections of xanthomatous cells were found in the bones of the skull, the meninges, and about the pituitary gland and hypothalamus, resulting in three main features: (i) defects of the membranous bones of the skull, (ii) exophthalmos, (iii) *diabetes insipidus*. In this case the orbit had been pushed downwards, but not forwards, and there was no *diabetes insipidus*, the average daily output of urine being 1,560 cubic centimetres (fifty-two ounces). Dr. Cox went on to say that the so-called xanthoma could hardly be classified as a tumour. The general view now held was that it was the result of some abnormality in lipoid metabolism, analogous to that which occurred in such conditions as Gaucher's disease, Niemann-Pick disease and amaurotic family idiocy. The blood cholesterol had been reported as being increased. In this case it was 135 milligrammes *per centum*, while the blood fat was 500 milligrammes *per centum*, both being within normal limits.

Paget's Disease Associated with Disseminated Sclerosis.

The sixth patient had suffered from Paget's disease associated with disseminated sclerosis. Dr. Cox detailed her history. She was a female, aged forty-four years, single. She attributed her illness to a blow received over the left parietal region and back of the head three years ago. She was nervously upset after the incident, but not otherwise affected. Then she slowly developed blindness in the left eye and ultimately became "stone blind". She had now recovered the sight in this eye, but thought that the right eye had become weaker and that the left eyelid was drooping. About sixteen months ago her hands became stiff and she was admitted to the Melbourne Hospital. She also complained of numbness of the feet and that she would fall down. Numbness had also occurred in various parts of her body. She had had periods of double vision and had lost control of her legs at times.

Dr. Cox said that she had improved considerably during the last year, although of late she had had much pain in the left hip and thigh. When admitted to hospital she showed the signs of *osteoarthritis deformans* of the skull. X ray examination showed that the condition was confined in the main to the anterior part of the skull. The right half of the pelvis was also affected. It had not been detected in any other areas.

Neurological examination revealed the following features: (i) pallor of the optic nerve head, (ii) nystagmus, (iii) absent superficial abdominal reflexes, (iv) an anomalous right plantar reflex, (v) slight tendency to incoordination of the right hand, (vi) slight intention tremor, (vii) some hesitancy in the stereognostic sense of the right hand and a diminished inability to discriminate two points as compared with the left.

Dr. Cox remarked that cerebellar signs had been described in Paget's disease as due to collapse of the basal areas of the skull, with compression of the cerebellum. This was not present in this patient. It was likely that she was suffering from a condition similar to disseminated sclerosis. Her brother was an inmate of the Alfred Hospital suffering from unquestionable disseminated sclerosis, but not Paget's disease. Her mother was also an inmate of this hospital. She was aged seventy-six and showed signs of involvement of the right Rolandic and parietal areas. She too was suffering from a pronounced condition of Paget's disease of the skull. No other signs of Paget's disease were discovered, and as she was suffering in addition from an arteriosclerotic condition, it was felt that a thrombosis was a more likely cause of her symptoms. He had intended to show the patient, but unfortunately she had died suddenly a few days previously of some acute cerebral condition.

DR. H. MAUDSLEY remarked that he had seen this patient some time previously. At that time she had shown a marked papillœdema. The changes in the skull had not been so pronounced then, and it was thought that she might be suffering from a xanthoma of the skull. He now attributed these previous eye changes to an acute retrobulbar neuritis and concurred in the diagnosis of disseminated sclerosis.

DR. H. PRAAGST said that he also had seen this patient previously and considered the diagnosis of xanthoma of the skull. He would now consider her condition definitely as a circumscribed Paget's disease of the skull.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Mater Misericordiæ Public Hospital, Brisbane, on October 5, 1934. The meeting took the form of a series of demonstrations by members of the honorary staff.

Ulcerative Colitis.

DR. P. J. KELLY showed a female patient who gave a history of looseness of the bowels for ten years, but who had never passed blood or mucus until November, 1933. She had then had an acute attack of colitis, was feverish and was passing blood and mucus in her stools. She had been treated with emetine, with Flexner's vaccine and with antidysenteric serum, but there had been no improvement in her condition. She had been admitted to hospital and was put on to an ordinary diet of fruit and vegetables, and made a good recovery in six weeks. She remained fairly well for three months, during which time the motions, according to her, remained normal. She was then readmitted to hospital with high fever and tenesmus, and with blood and mucus in the motions. No improvement took place for two months, and the patient was steadily going down hill, having lost control of the sphincter and passing blood and mucus into the bed. The pulse was weak and rapid, the buttocks were raw. All diets were tried without success, and eventually the apple diet was commenced, according to Dr. Earnshaw's method. Pure apple was given, and the number of apples was increased till the patient was taking fourteen apples daily with water and weak tea. She was given nothing else for four days. She took the apple well and in two days had lost her pain and tenesmus and felt much better. Before commencing the apple treatment there had been fifteen to twenty motions a day. On the second day of the treatment there were seven or eight motions. The buttocks became normal in three days. On the fifth day the patient was given milk and eggs, then fish and bread and butter, and the motions gradually decreased till within fourteen days of commencing the treatment she was out of bed and on the veranda. Now, three weeks from commencing the treatment, she was up and walking about and having two motions a day. The motions were still soft and not formed, and contained a little apple. She was still having seven apples a day, and it was intended to decrease the apples and to keep her on a good diet of vitamins, supplemented by iron.

DR. P. N. MACGREGOR showed a girl who had suffered for two years from ulcerative colitis. She would show improvement for a little while and then would relapse, but all the time she had blood and mucus in the motions. She was admitted to hospital six weeks previous to the meeting. She was then very pale, with a spongy condition of the gums; she was suffering a moderate amount of pain and was having from eight to ten blood-stained motions in twenty-four hours. The patient was treated with eggs and fresh bread, no milk, vegetables or fruit being given. She was found to have an achlorhydria and was given hydrochloric acid and 1·0 cubic centimetre (fifteen minims) of "Radiostoleum" daily, also iron and ammonium citrate. Within one month the general condition improved, but the motions did not improve much and there were still eight to ten motions a day with tenesmus. Two weeks previous to the meeting the apple treatment had been commenced along the same lines as with Dr. Kelly's patient. In two days a great improvement took place—the mucus and blood disappeared—and there were now only two to four motions a day. The patient was very well and was up and about.

Conditions Round the Shoulder Joint.

DR. L. A. LITTLE showed three patients on behalf of DR. G. W. MACARTNEY.

The first patient was a man who, three months previously, had had an operation for an inguinal hernia. Ten days after operation he complained of severe pain in both shoulder girdles, and three weeks after operation pronounced weakness of both arms was noticed, the left being the worse. Since then the patient thought there had been some improvement on the right side, but none on the left. The surgeon who performed the operation had been communicated with and had said that there was no injury at the time of operation.

On examination there was found to be considerable wasting of both arms, particularly on the left side, the deltoid and biceps being very weak. The right arm had responded to treatment by diathermy and massage, but the left had not. There was no sensory disturbance, but fibrillary twitching of the muscles was noticed. The Wassermann test gave no reaction.

It was suggested that the patient was suffering from progressive muscular atrophy, as shown by the distribution of the atrophy over the shoulder girdles and the commencing atrophy of the muscles of the hands, also by the fact that fibrillary twitching of the muscles was present and that there were no sensory changes. The condition of progressive muscular atrophy might be present in a patient and might not show up till after an accident or an operation or, rather, the patient might not notice the condition before then.

Dr. Little's second patient was a woman whose uterus had been curetted three months previously under spinal anæsthesia. Two days later she complained of pain in both arms, on the axillary surface deeply, as if it were in the bones. Seven to ten days later weakness of the left arm was noticed and the condition had remained much the same on and off ever since. There was found to be definite winging of the scapula on the left side; there was no weakness of any other muscles and no sensory changes were present. At operation the patient had been put up in the Trendelenburg position, and possibly there had been an injury to the nerve of Bell.

Dr. Little's third patient was a man who had a tumour on the outer side of the right arm and who had gradually increasing paresis of the muscles supplied by the radial nerve. When definite pressure was put on the small tumour the patient felt pain down the arm. The diagnosis was a neuro-fibroma of the radial nerve.

Double Kidney.

DR. STANLEY ROE showed a patient who was said to be suffering from pyelitis with pain in the right side of the abdomen. Investigation of both kidneys showed that the left ureter had a well marked spiral kink; the right side showed a double pelvis and double ureter. Dr. Roe said that double ureters were fairly common, and in the majority of cases there were double openings in the bladder itself. Occasionally there was one and then the ureter was duplicated further up. Some cases were not easy to discover, as the catheter would go up one ureter and the sodium iodide might fill only one ureter. In this patient the pyelogram demonstrated that the two pelves did not join and that there was a very definite stricture of the ureter, the material injected having gone down one ureter and up the other. Dr. Roe presumed that there were two pelves in one solid kidney and said it might be possible to dissect the lower pelvis. This had been done in America.

Nephroptosis.

Dr. Roe's second patient had had an operation for appendicitis, at which a kidney was found very low in the abdominal cavity. The patient was referred to Dr. Roe, who prepared pyelograms and found that the kidney on the right side was in moderately good position. The left kidney was found to be low down in the pelvis and to be hydronephrotic. A functional test would be done and if there were no result the kidney should be removed. The question as to the route of approach then arose.

Malignant Disease of the Kidney.

Dr. Roe also showed a girl, twenty-two years of age, who had been married one year and who for the past nine months had had recurrent attacks of pain in the left side. The pyelogram of the right side was normal. There was no excretion on the left side, but Dr. Roe thought there was some "Uroselectan" in the left pelvis and that there was probably a growth in that kidney. He said that a negative urogram was not of much use and should be confirmed by a retrograde pyelogram, in which the growth would show up. He had considered that it was probably malignant, as it was unilateral and as there was no suggestion of gross infection. This diagnosis of hypernephroma was confirmed at operation; the tumour was inoperable and was adherent to the ribs and the sur-

rounding tissues. The patient had collapsed at operation, but had recovered. It was decided to give deep X ray therapy later.

Adeno-Carcinoma of Vater's Papilla.

Dr. Little showed for DR. E. D. AHERN a male patient who had complained of epigastric pain for three months; for three weeks he had had vomiting, mostly at night, and had noticed progressive loss of weight, losing over one stone in three months. The epigastric pain was not definitely related to food and was much worse when he moved round. Three years previously he had had a hæmatemesis but had kept well while he was on diet. Investigations showed that the stomach residue had a high acid content and that there was some blood present. The Wassermann test gave no reaction. The patient was in a medical ward for some time, but his condition did not respond to the treatment for a gastric ulcer. He was transferred to a surgical ward. X ray examination showed that the stomach was of normal size, with a good deal of spasm in the prepyloric region, for which no cause could be found. There was no ulcer in the duodenum or pylorus. The second part of the duodenum was very dilated, but narrowed down with a spasm, and there was a very faint niche, which suggested an ulcer in that region. It was decided that there was a lesion in the ampulla of Vater. Operation was performed and the patient was found to have a fairly soft tumour of the duodenum on the proximal side of the ampulla of Vater and growing up to it. The tumour was soft and pulpy, with a large base, and section of it showed an adeno-carcinoma. With entire removal the patient should have a good chance of recovery. Carcinomata round the ampulla of Vater were rather like rodent ulcers of very slow growth—they did not infiltrate into the surrounding tissues, and surgery undertaken reasonably early was successful.

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

Laverty, Colin Robert Moore, M.B., B.S., 1928 (Univ. Sydney), 2 Oriental Street, Bexley.

Correspondence.

APPENDICITIS.

SIR: As the talk at present is of appendicitis, may I quote two recent cases of my own small practice that may be of interest. The first, an unmarried girl of twenty years, with a typical acute symptomatology. When incision (muscle-splitting) was made, an apparent typical appendix presented itself in the wound. To our surprise it proved to be a small bowel diverticulum (Meckel's ?), two inches long, jutting from the bowel-mesentery junction, about twelve inches from the ileo-caecal region. This was clamped and invaginated by a purse string, and the appendix itself, also inflammatory, sought for and removed.

The second, and more interesting, occurred four days ago in a married man in his early thirties. He presented typical appendix symptoms of pain and later vomiting, but very little tenderness abdominally, and none *per rectum*. Just before operation, however, he had localized tenderness over McBurney's point on fairly deep pressure. Twenty-five hours after onset of symptoms I opened the abdomen by means of a muscle-splitting incision and could feel a long, hard mass, extending well beyond my finger tip retrocaecally.

Preferring not to exert undue traction on the bowel, I closed the original incision and made a right paramedian incision, retracting the rectus muscle laterally and giving me adequate exposure.

A retrocaecal appendix of enormous proportions, very tense, but with no adhesions to other than the caecum, was exposed. It measured seven and a half inches from caecal junction to tip, and was three and a quarter inches in circumference at caecal junction, and only slightly less at the extreme tip.

I removed the organ mainly by subperitoneal dissection, as there was no mesentery save at the caecal junction, and reperitonized the track with fine gut suture. A soft rubber drain was left in and removed after forty-eight hours, no odour or drainage occurring. So far the patient is progressing normally.

I made a plaster cast of the organ and sent the original to Dr. J. V. Duhig, of Brisbane, for his museum.

For a generalized enlargement of an appendix this approaches more the herbivora than the human type. I can find no mention of this type, although longer ones of more normal diameter are quoted with their kinks and twists, of which this has none. The contents were fæcal and mucous membrane was, as one expected, injected.

Yours, etc.,
J. LLOYD SIMMONS, M.B., B.S. (Melb.).

Crow's Nest,
Queensland,
November 7, 1934.

AN INQUIRY.

SIR: I am wondering if any of your readers are able to help to solve what to me is a very difficult problem. During the years 1931-1932 I underwent several extracranial and intracranial operations on my fifth cranial nerve. The pain, from becoming intermittent and confined to the supraorbital branch, has become constant and spread to practically every branch of the nerve. I have tried almost every known analgesic, and the only one which mitigates the pain (even it does not abolish it) is morphine hypodermically. For three years I refused morphine (I was afraid of it). During the last nine months I have taken to morphine in earnest—about two grains of heroin daily in doses of a sixth of a grain. I am certain that every dose of heroin is not necessary for the relief of the pain; part of it, probably one-third, is because I am acquiring the "habit". Now this is my problem: Can anybody let me know of any treatment which, while allowing me the use of heroin for the relief of the pain, will help me to get rid of that part which is unnecessary for that purpose? I would be pleased if anybody with any useful ideas on the matter would communicate with me either personally or through the columns of your journal.

Yours, etc.,
ALEXANDER LYONS, M.R.C.P. (Edin.).

Eaglehawk,
Victoria,
November 11, 1934.

Obituary.

ERIC JEFFREY.

WE regret to announce the death of Dr. Eric Jeffrey, which occurred on November 22, 1934, at Hobart, Tasmania.

JOHN WILLIAM DUNBAR HOOPER.

WE regret to announce the death of Dr. John William Dunbar Hooper, which occurred on November 25, 1934, at Melbourne, Victoria.

NOTICE

THE Royal Australasian College of Surgeons wishes to invite all members of the British Medical Association to an address by Chas. Gordon Gordon-Taylor, O.B.E., F.R.C.S., Surgeon to Middlesex Hospital, London, to be delivered in the Medical Society Hall, East Melbourne, on Monday, December 3, 1934, at 8.15 o'clock p.m. The address will be entitled: "Gastric and Duodenal Ulcer"; particular reference will be made to: (*a*) indications for operation, (*b*) treatment of hæmatemesis.

Books Received.

HORMONE AND INNERE SEKRETION, by F. Laquer; 1934. Dresden and Leipzig: Theodor Steinkopff. Medium 8vo., pp. 379. Price: RM 18.

EXPERIMENTAL PHYSIOLOGY FOR MEDICAL STUDENTS (being the revised and enlarged edition of Anrep and Harris' Practical Physiology), by D. T. Harris, M.D., D.Sc., F.Inst.P.; Second Edition; 1934. London: J. and A. Churchill. Royal 8vo., pp. 248, with illustrations. Price: 12s. 6d. net.

THE SCIENCE AND PRACTICE OF SURGERY, by W. H. C. Romanis, M.A., M.B., M.Ch., F.R.C.S., F.R.S., and P. H. Mitchiner, M.D., M.S., F.R.C.S.; Volume I: General Surgery; Volume II: Regional Surgery; Fifth Edition, 1934. London: J. and A. Churchill. Royal 8vo., pp. 799 and 972, with 758 illustrations. Price: 14s. for each volume.

Diary for the Month.

DEC. 3.—New South Wales Branch, B.M.A.: Organization and Science Committee.
DEC. 4.—Tasmanian Branch, B.M.A.: Council.
DEC. 4.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
DEC. 5.—Western Australian Branch, B.M.A.: Council.
DEC. 5.—Victorian Branch, B.M.A.: Council.
DEC. 5.—Victorian Branch, B.M.A.: Branch Annual Meeting.
DEC. 6.—South Australian Branch, B.M.A.: Council.
DEC. 11.—Tasmanian Branch, B.M.A.: Branch.
DEC. 11.—New South Wales Branch, B.M.A.: Ethics Committee.
DEC. 13.—New South Wales Branch, B.M.A.: Branch.
DEC. 13.—Victorian Branch, B.M.A.: Council.
DEC. 14.—Queensland Branch, B.M.A.: Branch Annual Meeting.
DEC. 18.—Tasmanian Branch, B.M.A.: Council.
DEC. 18.—New South Wales Branch, B.M.A.: Medical Politics Committee.
DEC. 21.—Queensland Branch, B.M.A.: Council.

Medical Appointments.

THE undermentioned appointments have been made to the honorary medical staff of the Royal Alexandra Hospital for Children, Sydney, New South Wales: Dr. D. W. H. Arnott (B.M.A.), Honorary Medical Officer in Charge of Psychiatric and Child Guidance Clinic; Dr. B. P. Anderson Stuart (B.M.A.), Honorary Radiographer; Dr. E. W. Frecker (B.M.A.), Honorary Assistant Radiographer.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xviii, xix. and xx.

CANTERBURY DISTRICT MEMORIAL HOSPITAL, CAMPSIE, NEW SOUTH WALES: Resident Medical Officer.
HOBART PUBLIC HOSPITAL, HOBART, TASMANIA: Junior Resident Medical Officers.
LAUNCESTON PUBLIC HOSPITAL, LAUNCESTON, TASMANIA: Resident Medical Officers.
MOOROOPNA HOSPITAL, MOOROOPNA, VICTORIA: Senior Resident Medical Officer.
ST. GEORGE DISTRICT HOSPITAL, KOGARAH, NEW SOUTH WALES: Honorary Assistant Surgeon.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associate Friendly Societies' Medical Institute. Chillagoe Hospital. Members accepting LODGE appointment and those desiring to accept appointments to any COUNTRY HOSPITAL are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	Officer of Health, District Council of Elliston. All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

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